

APPENDIX A

EVALUATION OF HISTORICAL NAPL SURVEY DATA ON TABLE 4-0c

<u>Technical Memorandum (revised) – Evaluation of September 1999 DNAPL Thickness</u>
<u>Data Listed on Table 4-0c, Sauget Area 1, Groundwater Services, Inc., January 21, 2005</u>

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TECHNICAL MEMORANDUM (revised)

TO: Dr. Richard S. Williams, Solutia Inc.

FROM: James A. Kearley

RE: Evaluation of September 1999 DNAPL Thickness Data on Table 4-0c

Sauget Area 1, Sauget and Cahokia, Illinois

1.0 INTRODUCTION AND BACKGROUND

From September 1999 to April 2000, sampling and testing activities were conducted to investigate impacts to environmental media resulting from disposal/deposition of materials in Sauget Area 1 and to assess the associated risk to human health and the environment. Environmental contractors conducted the work on behalf of a group of potentially responsible parties (PRPs). During September 28-30, 1999, a contractor measured fluid levels and total depths at 38 wells and piezometers, all of which were screened in the shallow or middle hydrogeologic units (SHU or MHU) of the alluvial aquifer. According to the field notes from this survey, many of these wells and piezometers reportedly contained a significant thickness of pooled DNAPL. The PRPs' technical staff believed that these DNAPL thickness measurements were not reliable because pooled DNAPL was not observed during well development and sampling in October 1999. However, no further work was performed at the time to refute the DNAPL thickness data in the September 1999 field notes.

A copy of the September 1999 field notes was included in the Field Sampling Report for the Sauget Area 1 investigations (O'Brien & Gere, 2000), but the survey results were not discussed in the Sauget Area 1 Engineering Evaluation/Cost Analysis and Remedial Investigation/Feasibility Study (the EE/CA and RI/FS report). The EE/CA and RI/FS report (Roux Associates, 2001) did discuss the potential for DNAPL occurrence at Sauget Area 1 based on analysis of several indicators. The indicators included increasing COC concentrations with depth, presence of COCs deep in the alluvial aquifer, and presence of some COCs at concentrations in excess of 1% of the purephase solubility. Based on this information, the conceptual model for DNAPLs at that time was described as follows:

It is expected that much of the DNAPL mass at Sauget Area 1 is trapped by capillary forces within the alluvial aquifer pore space as small, discrete blobs and ganglia. However, some free-phase DNAPL may have migrated to the bedrock surface, where it may be present in free-phase pools.

The EE/CA and RI/FS report also discussed the presence or potential presence of pooled DNAPL observed at two bedrock wells (BR-G and BR-I) that were installed in 2000.

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The DNAPL data from the September 1999 field notes were tabulated and presented in Table 4-0c in an EE/CA and RI/FS report prepared by a contractor to the US Army Corps of Engineers for the USEPA (Adrian Brown, 2001). In a letter dated January 9, 2003, the USEPA requested that the PRPs perform a DNAPL investigation at Sauget Area 1. The DNAPL characterization study at Sauget Area 1 has recently been completed, in accordance with the approved Work Plan (GSI, 2004).

As documented in this memorandum, the September 1999 DNAPL thickness data are not reliable and do not accurately represent conditions within the SHU and MHU of the alluvial aquifer. This conclusion is based on results of a May 2004 NAPL survey and several sources of information that were available in 1999-2000, including: i) the absence of visual observations of pooled DNAPL in field notes from well development and sampling in October 1999; ii) the absence of low-permeability layers within the alluvial aquifer that could account for significant pooling of DNAPL in the SHU and MHU; iii) groundwater analytical results from certain wells that appear to be inconsistent with the reported presence of significant thickness of pooled DNAPL in those wells; and iv) the reported presence of pooled DNAPL in the SHU and MHU at locations near Site N.

An earlier version of this memorandum dated August 4, 2004 was previously submitted to USEPA. The memorandum has been revised to address comments received from USEPA in a letter dated September 16, 2004.

Key Finding of this Memorandum

Based on review of all available information, it is our opinion that the only reliable data in the September 1999 field notes regarding NAPL occurrence is the visual observation of free product (now known to be LNAPL) at well EE-11. We believe that pooled DNAPL was <u>not</u> widely present during September 1999 within the wells and piezometers screened in the shallow and middle hydrogeologic units of the alluvial aquifer.

2.0 EVALUATION OF SEPTEMBER 1999 FIELD NOTES

The field notes from the well survey conducted in September 1999 (see Attachment 1 of this memo) were included in Volume 9 of the Field Sampling Report for Sauget Area 1 (O'Brien & Gere, 2000).

Scope of the September 1999 NAPL Survey: A total of 38 locations were measured during the NAPL survey, including fourteen shallow monitoring wells and twenty-four small-diameter piezometers. The field notes include the following information: date and time of measurements; air monitoring readings from a photo-ionization detector (PID); depth to water in feet below grade; total well/piezometer depth in feet below grade; and measurements of depth to top of DNAPL and depth to base of DNAPL in feet. The downhole soundings were taken with an interface probe, but the make and model of the

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interface probe were not identified in the notes. Inspection of the interface probe tape was the apparently only method for visual confirmation of NAPL presence. There were no indications in the notes that other methods (i.e., clear bailers or weighted cotton string) were used for further visual confirmation of NAPL presence. As shown below, the field notes indicate that the well soundings were taken at a rapid pace. This suggests that the survey may have been performed in a hurried manner.

Measurement Date	Survey Duration (minutes)	Wells/Piezometers Measured	Avg. Time per Well/Plezometer (minutes)
9/28/99	125	17	7.4
9/29/99	70	6	11.7
9/30/99	160	15	10.7

NAPL Survey Results: Measured total depths ranged from to 9.85 feet to 60.08 feet. Based on this range of total depths, all the wells and piezometers were screened in either the SHU or MHU of the alluvial aquifer. Based on well soundings using the interface probe, pooled DNAPL was reported to be present at 33 of the 38 wells and piezometers. The maximum reported thickness of pooled DNAPL was 23.29 feet at well EE-01. DNAPL thickness of three feet or more was reported to be present in 24 of the 38 wells and piezometers.

At seven piezometers, it was reported that there were two or three separate layers of pooled DNAPL. For example, the field notes included the following data for piezometer P1-A-M.

Data Reported for Plezometer P1-A-M					
Depth to water	20.54 ft				
First interval of DNAPL	21.60-24.89 ft (thickness=3.29 ft)				
Second interval of DNAPL	36.31-37.71 ft (thickness=1.40 ft)				
Third interval of DNAPL	39.08-40.42 ft (thickness=1.34 ft)				
Total depth of well	40.42 ft				

The only visual observation of NAPL recorded in the September 1999 field notes was for well EE-11. The field notes indicated that free product was present at EE-11 from "10.27 feet down" and stated that the "Well has free product in it! Brown oily liquid." This observation was apparently based on inspection of the interface probe after it was removed from EE-11.

GSI's Evaluation of the September 1999 Field Notes: NAPL was certainly present in well EE-11, based on the visual observation of free product recorded in the field notes. As discussed in Section 3.0 of this memorandum, NAPL was found at well EE-11 during the May 2004 survey and was confirmed to be LNAPL and not DNAPL.

If a significant thickness of pooled DNAPL had actually been present in other wells and piezometers measured in September 1999, then there should have been additional visual observations of free product on the interface probe. No visual observations of

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NAPL were recorded in the field notes, except at EE-11. The absence of visual observations of free product on the interface probe at other wells calls into question the reliability of the DNAPL thickness data in the September 1999 field notes.

The reported presence of multiple distinct layers of pooled DNAPL in seven piezometers also raises concerns about the reliability of the DNAPL soundings. When pooled DNAPL is present in a well, it is typically encountered in a single layer at the bottom of the well, not in multiple layers distributed within the water column.

3.0 RESULTS OF MAY 2004 AND OCTOBER 2004 NAPL SURVEYS

As requested by the PRP group, Groundwater Services, Inc. (GSI) performed a NAPL survey at Sauget Area 1 in May 2004. The survey included 57 wells and piezometers and was conducted in accordance with the procedures outlined in Task 2 of the Work Plan for DNAPL Characterization and Remediation Study (GSI, 2004). C2M Hill, a USEPA contractor, was present for oversight of the survey.

NAPL Survey Procedures: At each well and piezometer, the survey included measurement of depth to water and a check for the presence and thickness of accumulated LNAPL and pooled DNAPL using an electronic interface probe. A disposable clear bailer was lowered to the water level in each well to check for the possible presence of accumulated LNAPL. A visual check for pooled DNAPL was performed by lowering a weighted cotton string to the bottom of the well, then retrieving the string to inspect for evidence of staining. Finally a disposable clear bailer was lowered to the bottom of each well to check for the presence of pooled DNAPL. New string, bailer, and bailer cord were used for each well, and soiled string, bailers, and cord generated during the survey were placed in a designated container for management as investigation-derived waste.

Results of May 2004 NAPL Survey and NAPL Recovery Tests: Of the 57 wells and piezometers surveyed in May 2004, three were bedrock wells (BR-G, BR-H, and BR-I) and 54 were screened in the SHU or MHU of the alluvial aquifer. Two of the bedrock wells (BR-G and BR-I) showed some evidence of the presence of a small amount of pooled DNAPL, but no free product was recovered from BR-G or BR-I during recovery tests conducted in May 2004. NAPL survey and recovery test results for the bedrock wells will be discussed in the project report for the Sauget Area 1 DNAPL characterization study.

Of the 54 wells and piezometers screened in the SHU and MHU that were measured in May 2004, only well EE-11 was found to contain free product (see Table 2-1 in Attachment 2). Well EE-11 contained a dark brown LNAPL that appeared to be a petroleum hydrocarbon, based on color and odor. The well contained as much as 8 to 9 feet of LNAPL. A total of approximately one gallon of LNAPL was removed from EE-11 during a recovery test conducted on 5/19/04. Well EE-11 went dry after only a relatively short period of pumping. Fluid levels in EE-11 were re-measured on 5/20/04 and at that time well EE-11 had a layer of LNAPL approximately 0.2 feet thick. A total of

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approximately 1/4 cup of LNAPL (0.02 gallons) was removed from EE-11 during the recovery test conducted that day. A sample of LNAPL recovered from EE-11 on 5/19/04 was retained for chemical analysis and physical properties testing. Laboratory testing results will be documented and discussed in the project report for the Sauget Area 1 DNAPL characterization study.

A second NAPL survey was conducted at Sauget Area 1 in October 2004, but this survey provided little new information regarding the wells and piezometers screened in the SHU and MHU of the alluvial aquifer. The October 2004 NAPL survey focused on the newly installed bedrock piezometers and the three previously existing bedrock wells (BR-G, BR-H, and BR-I). The only shallow wells that were checked were EE-11 and piezometer A1-17. Evidence of LNAPL was observed on a clear bailer lowered into shallow well EE-11, but no LNAPL could be recovered. There was no evidence of LNAPL or DNAPL during measurements at A1-17.

Results of May 2004 NAPL Survey

During the May 2004 NAPL survey there was some evidence of pooled DNAPL in two bedrock wells, and an accumulation of LNAPL was found at shallow well EE-11. However, no evidence of pooled DNAPL was found at any of the 54 wells and piezometers screened in the SHU and MHU of the alluvial aguifer.

4.0 SITE INFORMATION THAT CONFLICTS WITH DNAPL THICKNESS DATA

Several sources of information that were available in 1999-2000 suggest that the DNAPL thickness data in the September 1999 field notes are not reliable. The lines of evidence include: i) the absence of visual observations of pooled DNAPL in field notes from well development and sampling; ii) the absence of low-permeability layers within the alluvial aquifer that could account for significant pooling of DNAPL in the shallow and middle hydrogeologic units of the alluvial aquifer; iii) groundwater analytical results for certain wells that appear to be inconsistent with the presence of significant thicknesses of pooled DNAPL at those wells; and iv) the reported presence of pooled DNAPL near Site N, which is not considered to be a significant DNAPL source area.

4.1 No Free Product Observed During Well Development and Sampling

Well development and groundwater sampling at Sauget Area 1 began a few days after completion of the September 1999 NAPL survey. During October 4-6, 1999, eleven existing wells were developed to remove sediment (see field notes in Attachment 3). As summarized on the table below, the field notes for well development included no visual observations of free product. However, there was a statement in the field notes from October 5, 1999, that the interface probe made a tone indicating the presence of DNAPL at well EEG-104, when in fact no DNAPL was found to be present. This shows that interface probe soundings can sometimes provide false positives of pooled DNAPL.

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	Data from September 1999 Field Notes		ons During Well Development (October 4-6, 1999)
Well ID	Reported DNAPL Thickness (ft)	Free Product Observed?	Other Statements in Field Notes Regarding NAPL
EE-03	20.78	No	•
EE-05	Well not measured	No	-
EEG-101	9.19	No	-
EEG-102	9.20	No	-
EEG-104	12.73	No	"Gauge went off but no DNAPL" (see p. 52 of notes in Attachment 3)
EEG-106	10.35	No	-
EEG-107	18.54	No	-
EEG-108	19.38	No	-
EEG-109	11.87	No	
EEG-110	13.14	No	-
EEG-112	11.04	No	-

During October 7-13, 1999, groundwater samples were collected from eleven existing monitoring wells. The field notes indicate that odors and/or discoloration were observed in groundwater removed from some wells, at the start of purging and/or at the time of sampling. A sheen was observed in groundwater removed from two of the wells. However, no pooled DNAPL was observed during purging and sampling of these wells.

Data from September 1999 Field Notes		Observations During Purging and Sampling of Wells (October 7-13, 1999)				
Well ID	Reported DNAPL Thickness (ft)	Description of Water at Start of Purging	Description of Water at Time of Sampling	Sheen or Free Product Observed?		
EE-01	23.29	Dark gray; odor	Clear w/ black sediment; odor	No		
EE-03	20.78	Light brown; no odor	Clear w/ brown particles; no odor	No		
EE-05	Well not measured	Clear; chemical odor	Clear; chemical odor	Trace sheen		
EEG-101	9.19	Light brown; alcohol odor	Clear; no odor	No		
EEG-102	9.20	Rust; no odor	Clear; no odor	No		
EEG-104	12.73	Gray; no odor	Clear; slight odor	No		
EEG-106	10.35	Clear; no odor	Clear; no odor	No		

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Data from September 1999 Field Notes		Observations During Purging and Sampling of Wells (October 7-13, 1999)			
Well ID	Reported DNAPL Thickness (ft)	Description of Water at Start of Purging	Description of Water at Time of Sampling	Sheen or Free Product Observed?	
EEG-107	18.54	Brown/black; odor	Yellow; odor	Waxy sheen	
EEG-109	11.87	Gray; no odor	Clear; no odor	No	
EEG-110	13.14	Clear; no odor	Clear; no odor	No	
EEG-112	11.04	Clear; no odor	Clear; no odor	No	

GSI reviewed field notes from static water level surveys conducted December 28, 1999; March 2-3, 2000; and June 26-27, 2000. Total depths were measured during the December 1999 survey, indicating that a probe was lowered to the bottom of each well during that survey. Total depths were not measured during the March and June 2000 surveys. The field notes indicate that free product was observed on the probe at well EE-11 on March 3, 2000. The notes for the survey performed on March 3, 2000 include the following observations at well EE-11:

probe/tape have brown liquid on it as it is w/drawn from the well – appearance is similar to thin molasses; odor is noticed as probe/tape [is] cleaned off. (see p. 159 on field notes in Attachment 3).

There were no other observations of free product in the notes from December 1999, March 2000, or June 2000. During our review of field notes from 1999-2000, GSI found no indication that free product was ever observed on the interface probe at any of the wells listed in the September 1999 field notes, other than well EE-11. The absence of other visual observations of free product recorded in the field notes from 1999-2000 calls into question the reliability of DNAPL thickness data in the September 1999 field notes.

4.2 Absence of Low-Permeability Layers within the Alluvial Aguifer

The wells and piezometers listed in the September 1999 field notes are screened within the alluvial aquifer. The alluvial aquifer, which is divided into three hydrogeologic units, is underlain by limestone bedrock that typically begins at approximately 105 to 110 feet below grade.

Hydrogeologic Unit of Alluvial Aquifer	Approx. Depth Interval (ft below grade)	Primary Soil Classifications
Shallow (SHU)	0-30 ft	Fine to medium sand
Middle (MHU)	30-70	Medium to coarse sand
Deep (DHU)	70-Bedrock	Medium to coarse sand and gravel

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The wells listed in the September 1999 field notes have total depths ranging from approximately 20 to 33 feet below grade, generally corresponding to the SHU. The piezometers listed in the September 1999 field notes have total depths ranging from approximately 10 to 60 feet below grade, corresponding to the SHU and MHU. For significant pooled DNAPL accumulations to be present in these wells and piezometers, there would need to be one or more laterally continuous low-permeability layers underlying the wells and piezometers to serve as barriers to downward migration of pooled DNAPL.

The depth to the bedrock surface is significantly deeper than the total depths of the wells and piezometer listed in the September 1999 field notes. Pooling of DNAPL on top of the bedrock surface could not plausibly account for the reported accumulations of DNAPL listed in the September 1999 field notes. Based on our review of boring logs from Sauget Area 1 (see examples in Attachment 4) there are no low-permeability layers within the alluvial aquifer that could explain the significant thicknesses of pooled DNAPL recorded in the September 1999 field notes.

4.3 Certain Groundwater Data Not Consistent with Presence of DNAPL

Concentrations of total VOCs and total SVOCs in groundwater at Sauget Area 1 are presented on Figures 4-18 and 4-19 in the Sauget Area 1 EE/CA and RI/FS report (Roux Associates, 2001). These maps (see Attachment 5 of this memo) indicate that some wells have elevated concentrations of VOCs and/or SVOCs in groundwater. However, GSI identified eight wells where there were minimal or no VOC and SVOC impacts in groundwater, but which were reported to have significant pooled DNAPL thickness, according to the September 1999 field notes.

The reported presence of 8.44 to 19.38 feet of pooled DNAPL in these eight wells is not consistent with the groundwater analytical results for VOCs and SVOCs listed in the table below. Furthermore, it is unlikely that the monitoring wells screened in the SHU and MHU at Sauget Area 1 would have been sampled if they contained significant pooled DNAPL thickness.

Well ID	DNAPL Thickness from the September 1999 Field Notes (ft)	Total VOCs in GW from Fig. 4-18 (ug/L)	Total SVOCs in GW from Fig. 4-19 (ug/L)
EE-04 **	8.44	ND	ND
EE-20 **	14.88	ND	1.2
EEG-101	9.19	ND	ND
EEG-102	9.20	11	68
EEG-104	12.73	ND	ND
EEG-108 **	19.38	13	ND
EEG-110	13.14	3.2	ND
EEG-112	11.04	4.7	1.1
** = Groundwate	er samples collected using C	Seoprobe equipment at location	s adjacent to the wells.

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4.4 Reported Presence of Pooled DNAPL Near Site N

The September 1999 field notes reported that pooled DNAPL was measured in 1999 at five of the six piezometers located in the vicinity of Site N (see Figure 2 in Attachment 1).

Piezometer ID	Approx. Distance from Site N Boundary (ft)	DNAPL Thickness from September 1999 Field Notes (ft)
P3-B-S	300	2.71
P3-B-M	14	3.24
P3-B-D	45	No DNAPL
P3-A-S	900	1.55
P3-A-M	31	3.67
P3-A-D	34	3.79

Based on previous investigations and historical information regarding past usage, Site N is not considered to be a significant DNAPL source area. The reported presence of 1.55 to 3.79 feet of pooled DNAPL in piezometers located 900 feet beyond the boundaries of Site N is very surprising and should raise questions about the reliability of the data in the September 1999 field notes.

Conclusions Regarding DNAPL Thickness Data in September 1999 Field Notes

The DNAPL thickness values in the September 1999 field notes (which were tabulated in Table 4-0c) are not reliable data. We believe that pooled DNAPL was <u>not</u> widely present in September 1999 within the wells and piezometers screened in the shallow and middle hydrogeologic units of the alluvial aquifer.

One possible explanation for the questionable DNAPL measurements is that a defective interface probe may have been used during the September 1999 survey.

REFERENCES

- Adrian Brown, 2001. Engineering Evaluation/Cost Analysis, Remedial Investigation/ Feasibility Study, Sauget Area 1, Volume 1, Revision 2, September 28, 2001.
- Groundwater Services, Inc., 2004. Workplan for DNAPL Characterization and Remediation Study, Sauget Area 1 Sites, Sauget, Illinois. April 1, 2004.
- O'Brien & Gere Engineers, 2000. Soil, Ground Water, Surface Water, Sediment, and Air Sampling Field Sampling Report, Sauget Area 1, Volumes 3 and 9, July 2000.
- Roux Associates, 2001. Engineering Evaluation/Cost Analysis, Remedial Investigation/ Feasibility Study, Sauget Area 1, Revision 1, June 8, 2001.



EVALUATION OF SEPTEMBER 1999 DNAPL THICKNESS DATA ON TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

ATTACHMENTS

Attachment 1	Data Regarding NAPL Survey in September 1999
Attachment 2	Results of NAPL Survey in May 2004
Attachment 3	Additional Field Notes from 1999-2000
Attachment 4	Selected Boring Logs
Attachment 5	Figures from EE/CA and RI/FS Report for Sauget Area 1



EVALUATION OF SEPTEMBER 1999 DNAPL THICKNESS DATA ON TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

<u>ATTACHMENT 1 – DATA REGARDING NAPL SURVEY IN SEPTEMBER 1999</u>

Figure A-1: Estimated Extent of DNAPL from Table 4-0c

(Source: Work Plan for DNAPL Study, GSI, 2004)

Table 4-0c: Summary of Field Notes and Observations During Groundwater Monitoring

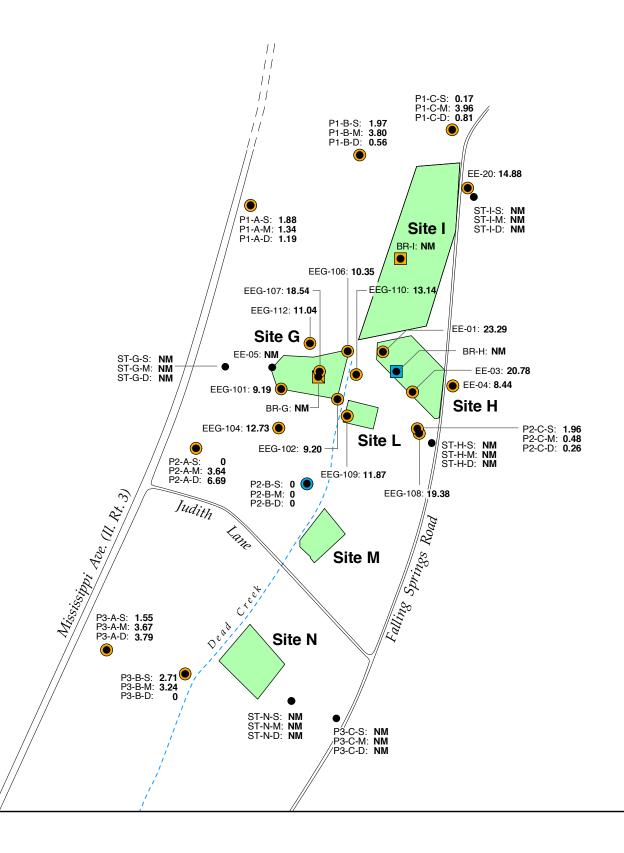
(Source: EE/CA and RI/FS Report, Adrian Brown, 2001)

Field Notes from NAPL Survey, September 28-30, 1999

(Source: pages 45-49 from Book 5, Volume 9 of Field Sampling Report,

O'Brien & Gere, 2000)

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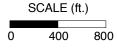
LEGEND

N

- Monitoring well or piezometer location
- Bedrock monitoring well where DNAPL was observed during groundwater sampling in 2000
- Bedrock monitoring well where potential presence of DNAPL was noted during groundwater sampling in 2000
- Bedrock monitoring well where no indication of DNAPL was noted during groundwater sampling in 2000
- Monitoring well or piezometer where DNAPL was reported to be present according to Table 4-0c
- Monitoring well or piezometer where DNAPL was reported to be absent according to Table 4-0c
- (18.54) DNAPL thickness reported on Table 4-0c.
- (NM) No information listed on Table 4-0c for this well or piezometer

Note:

Table 4-0c was in the September 2001 EE/CA and RI/FS report prepared for the U.S. Army Corps of Engineers. Table 4-0c was a tabulation of field notes recorded by a Solutia contractor during a well survey conducted September 28-30, 1999.





ESTIMATED EXTENT OF DNAPL FROM TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

Revised: Appv'd By:	
Issued: 1/21/05 Chk'd By:	JAK
GSI Job No: G-2876 Drawn By:	DLB

Table 4-0c. Summary of Field Notes and Observations during Groundwater Monitoring

Well/ Plezometer	Depth to Water (ft BGS)	of DNAPL (ft)	Depth to bot of DNAPL (ft)	DNAPL Thickness (ft)	Total Depth (ft)	Comments
EE-01	8.43		32.75	23.29	32.75	
EE-03	10.93	L	32,80		32,80	ŧ
EE-04	12.78	13.87	22,31	8.44	22.31	
EE-11	NA	10.27	NA	Full depth		Well completely full of "brown oily liquid," no water
EE-20	12.09	13.01	27.89	14.88	27.89	to a semplotely fall of blown only liquid, no water
EEG-101	11.63	12.66	21.85	9.19	21.85	
EEG-102	10.25	11.32	20.52	9.20	20.52	<u></u>
EEG-104	10.36	11.48	24.21	12.73	24.21	
EEG-106	8.20	9.25	19.60	10.35	19.60	
EEG-107	28.46	9.92	28.46	18.54	28.46	
EEG-108	7.97	9.04	. 28,42	19.38	28.42	
EEG-109	10.09	11.13	23.00	11.87	23.00	
EEG-110	9.42	10.51	23.65	13.14	23.64	
EEG-112	9.11	10,19	21,23	11.04		
P1-A-S	19.55	20.32	22,20	1.88	21.23	
P1-A-M	20.54	21.60	24,89	3.29	22.20	
		36.31	37.71			
		39.08	40.42	1.40		
P1-A-D	20.88	22.00	25.33	1.34	40.42	
		56,06	57.37	3.33		
· · · · · · · · · · · · · · · · · · ·		58.89	60.08	1.31		
P1-B-S	14.35	15.16	17.13	1.19	60.08	
P1-B-M	15.03	16.09		1,97	17.13	
	10:00	35.94	19.44	3.35		
21-B-D	14.96	56.01	39.74	3.80	39.74	
21-C-S	16.91	17.00	56.57	0,58	59.88	
21-C-M	15.88	17.00	17.17	0.17	17.17	
,,,	13.00		20.32	3.29		
P1-C-D	15.79	35.95	39.91	3.96	39,91	
	13,78	55.80	56.50	0.70		
2-A-S	40.04	58.77	59.58	0.81	59,58	
Z-7-3	10.94	NA	NA	NA	18.18	

Table 4-0c (continued)

Well/ Plezometer	Depth to Water (ft BGS)	Depth to top of DNAPL (ft)	Depth to bot of DNAPL (ft)	DNAPL Thickness (ft)	Total Depth (ft)	Comments
^P 2-A-M	11.04	11.98	15.62	3.64	39.23	
P2-A-D	11.06		38,47	3.37		
		53.22	59.91		59.91	
P2-B-S	6.84	NA	; NA	NA	9,85	
² 2-B-M	6.84	NA	NA	NA :	39.87	
22-B-D	6.75	NA NA	·· NA	NA	59.45	
22-C-S	7.30		. 10.05		10.05	
P2-C-M	7.50	8.48	11.93			
		34.79	36.90	1	····	
		38.12	38.60		38.60	
22-C-D	7.98	55.91	56,17	0.26	58.59	
² 3-A-S	12.23	13.08	14.61	1.55	14.61	
² 3-A-M	12.07	35.89	39,56	3,67	39.56	
'3-A-D	12.19	55.79	59,58		59.58	
'3-B-S	9,58	10.42	13.13	2.71	13.13	
3-B-M	9.78		39.10		39.10	
3-8-D	9.64		VA AV	712.1	55.06	

	20	
9/28/99 Existing 6W Well (New Piezo	ate like lands	
1726 19 to the Tole Tole Color of the	Notes SWP/A)C	
Vell Pier of To Whan Below Gode 1 " J- S 912969 0920 11.92-5.08 = 6.84	PID-000 TD-1493-5082	
2-B- M 9/26/49 6932 9.55 -2.71 = 6.84	AD-0 pm TD-42.58-2.71=39.87	E.S.
2-B-D 1/20/51 6034 12.12 -5.37 = 6.75 11	DID-Opm TD 64.82 - 5.37=58.45	
2-A-S 1/2409 0955 12.92 - 198 = 10.94	PID-020 TD 20.16 -1.98=18.18	
2-A-M 9/244 0157 13.60 -2.50 = 11.04!	DIAD - 14,54 to 18.18	
2-A-D 9/20/89 0959 13.87-2.76 = 11.06	DIAPL - 35.86 to 39.23 PID. Oppus TD 62.67-2.76=59.91	
SAR SOND A BADADADADADADADADADADADADADADADADADA	DNAPL -55.98 to 62.67 = 100 May 12 Ma	
EG-104 9/2499 1020 [118 -0.82 = 10.36'	PID -070- TD25.05-0.82:24.2)	
	DNAPL -11.48 to 24.21 .	
3-8-S 9/25/47 1050 11.71 -2.13 = 9.58	PID-07 TD 16.24-2.8=8.8	
<u> </u>	DNAPL- 10.42 WED 13.13	
3-B-M 1/28/19 1055 12.33 - 2.55 = 9.78.	PID +-0 ppm TD 41 45-2,55=3210	
	DNAPL 35.86 %39.10	
3-B-D 1/26/49/1100 12.06 - 2.42 = 9.64	PITO - Opp- TD57/8-2AZ=550L	
	PID - Oppor TD 17.04-243= A-21	un.
: -S Thing 165 14.66 - 2.43 = 12,23	DNAPL-13,01-14.61	
	PID-078- TD 4200-2,44=9.56	, a
3-A-M 7/26/99 1110 19.51 -2.44 = 12.07		
7 - 6/1 1157 2462 17 19'	DNAPL-35.89 + 37.56 PND-OPP TD H.W-248=57.58	
3-A-D 9/26/29 1115 14-67 -2.48= 12.19'	DNAPL - 55,79 to 59,5-8	
72-C-5 1/15/99 1120 9.90 - 2.60 = 7.30	PID-019- TD 1215- 2,100 - 1000	
7.50 / 1.10 2.60 (, 30	DNAPL- 8.04 to 10:05	600 00 00 00 2000 00 00 00
2-C-M /28/19 1122 10.81 - 3.31= 7.50	PID-Opp TD 41.91-3.31=35,60	
1-7-11-11-11-11-11-11-11-11-11-11-11-11-	DNAPL - 8.48 to 11.93	
	38.12 to 88.60	7
'2-C-D 1/26/99 125 11,16 -3,18 = 7,98'	78.17 → 58.40 PID-Opm TO 61.77-5.18=59	
	DNAP L 35.86 to 56.17	
EEG-108 9/28/45 1135 8.69 -0.72 =7.97"	PID-0 ppm TD 29,14-0.72=28.42	
	DNAPL 9.04 to 26.42	
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	THE SECOND SECON	
	9/28/99	

Existing Well & New Pugomter Water Levell 9/29/99
PALIFORATED ON: 9.29.99 C(DATE)
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7130/99 Exorty BW Well & New Present Wester Levels
CALIBRATED DAY A LO . C (SHOW) A) CO-K
STANDARDS USED: 102 form
STANDARDS TRACEABLE TO:
ENVIRONMENTAL CONDITIONS ARE SUITABLE FOR CALIBRATION (9) 10
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11/0/10/12		
M-A-5 Plogg 1010	1.00	MAPL- 20.52 to 22.20
90 1015		10 02 - 0 ftm
P1-A-M 9/se/99 1015	20.11	7.08 to 40.42
	- 147	ND BS - Other
P1-A-D 9530/99 1020	160,22 V.)	N 10 10 10 10 10 10 10 10 10 10 10 10 10
		58,89 to 60,08
	1/2/20	·
P1-B-5 9/2999 1035	17.44 -309=14.35 17.13	POBE-ONO 12 P.C. PID WELL-GOOD 12 P.C. DNADL 15 116 +012.13
	18 05 -3.02 =15.03 42.76-3.822	PID BZ - OPPM DID WEH - 50HM 10 AAV
P1-B-M 9/20/29 1040		DNAPL 16.09 to 19.44
	- 196 01 -2.05 = 14.96 (29) 59.86	PID BZ - OPPT
P1-B-D 430/49 10:45		DVA92-56.01 10 50-
	19.94 -3.03=16.91 20,20-3.03=	PID BZ-OPP
P1-C-\$ 9/20/99 1/00		DNAPL 17.00 to 11.00
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P1-C-M 9450/09 1105		35.42.62.7
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		58.11 - 63.12
EF-14 Well Is	Danged Could Not get	Robe Down Well
	10 - Q / 22,30-LØ	= MORE - ALL
EEG-112 9299 1130	10.18 - 1.85 = 7.11 21.73	DAIPL-10.19 40 21.23
	9.99 -1.79 = 8.20 21,59 -1.76	I PIDME OFF
		PIDWAN - DOPEN - 19110 PNAPL - 125 AB-19110
representation of the control of the		

Existing Afell & New Pregonather Water Levels 9/20/99 Notes PP Depto to Wester B6 TD BG Woll / Piczo ID Date / Time 21,42-0,90= 20,52 11.15 -0.90=10.25 PIDWELL OPPM DNAPL - 11,32 + 20,52 9/20/49 1205 6-102 PIDBE - PPPM 32,35-3,69= 28,46 12.76 - 3.89 = 8.67 PID Well-50 ppm DNAPL 9,92 +02846 9/20/04 1220 EEG-107 PIDBZ - Uppen -1.74 = -1.74 PIO NE 11-45 04-7 9/30/99 1230 Free Rodotto Brown ONLY Liquid PID BZ - LAPAN 24.95-3.10= DUAPL-12,68 +0 1473 -3.10 =11.63 44999 1250 EEG-101 Werred 730/59 EE-DS ...) #a. & p. Car がなった。 - 2 <u>.</u> ينت دادر . ن از ب ٠<u>٠</u> برايخ.



EVALUATION OF SEPTEMBER 1999 DNAPL THICKNESS DATA ON TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

ATTACHMENT 2 - RESULTS OF NAPL SURVEY IN MAY 2004

Table A-1: Results of May 2004 NAPL Survey

Figure A-2: Map Showing NAPL Survey Results, May 2004

GSI Job No. G-2876 Issued: 1/21/05 Page 1 of 2



Table A-1 Results of May 2004 NAPL Survey Sauget Area 1

Sauget and Cahokia, Illinois

<u> </u>	Measured	Measured	Measurements or
Well I.D.	Depth to Water (ft below toc)	Total Depth (ft below toc)	Observations of Free Phase LNAPL or DNAPL?
EE-01	13.23	34.96	No
EE-03	15.65	34.94	No
EE-04	17.04	19.94	No
EE-05	16.64	22.15	No
EE-11	(see Note 2)	23.12	Yes - LNAPL (see Note 2)
EE-20	15.95	30.45	No
EEG-101	17.56	19.93	No
EEG-102	13.90	22.05	No
EEG-106	**	**	**
EEG-107	15.55	32.04	No
EEG-108	11.32	23.97	No
EEG-109	**	**	**
EEG-110	13.61	25,33	No
EEG-112	13.15	22.30	No
P1-A-S	Dry	22.05	No No
P1-A-M	23.65	40.21	No
P1-A-D	23.60	59.74	No
P1-B-S	20.24	21.19	No No
P1-B-M	20.83	42.67	No
P1-B-D	20.72	62.71	No
P1-C-S	20.72 Dry	19.51	No No
P1-C-M	21.00	42.30	No No
P1-C-D	21.06	62.11	No
P2-A-S	16.89	20.94	No
P2-A-M	16.60	41.49	No
P2-A-W	16.92	62.59	No
P2-B-S	12.47	12.68	No No
P2-B-M	12.45	42.60	No
P2-B-IVI P2-B-D	12.60	62.44	No No
P2-C-S	12.42	15.83	No
P2-C-M	13.49	41.53	No
P2-C-W	13.84	61.13	No No
P3-A-S	Dry	16.80	No No
P3-A-M	17.20	42.05	No No
P3-A-M	17.35	62.05	No
P3-B-S	15.04	16.10	No No
	14.80	41.36	No
P3-B-M	15.20	57.10	No No
P3-B-D	14.29	18.29	No No
P3-C-S		41.58	No
P3-C-M	16.12 16.16	61.99	No
P3-C-D			No
ST-G-S	Dry 12.22	12.43	No No
ST-G-M	12.33	44.53	
ST-G-D	12.60	79.99	No No
ST-H-S	Dry 0.40	8.98	No No
ST-H-M	8.40	42.73	No No
ST-H-D	8.87	79.38	No No

GSI Job No. G-2876 Issued: 1/21/05 Page 2 of 2



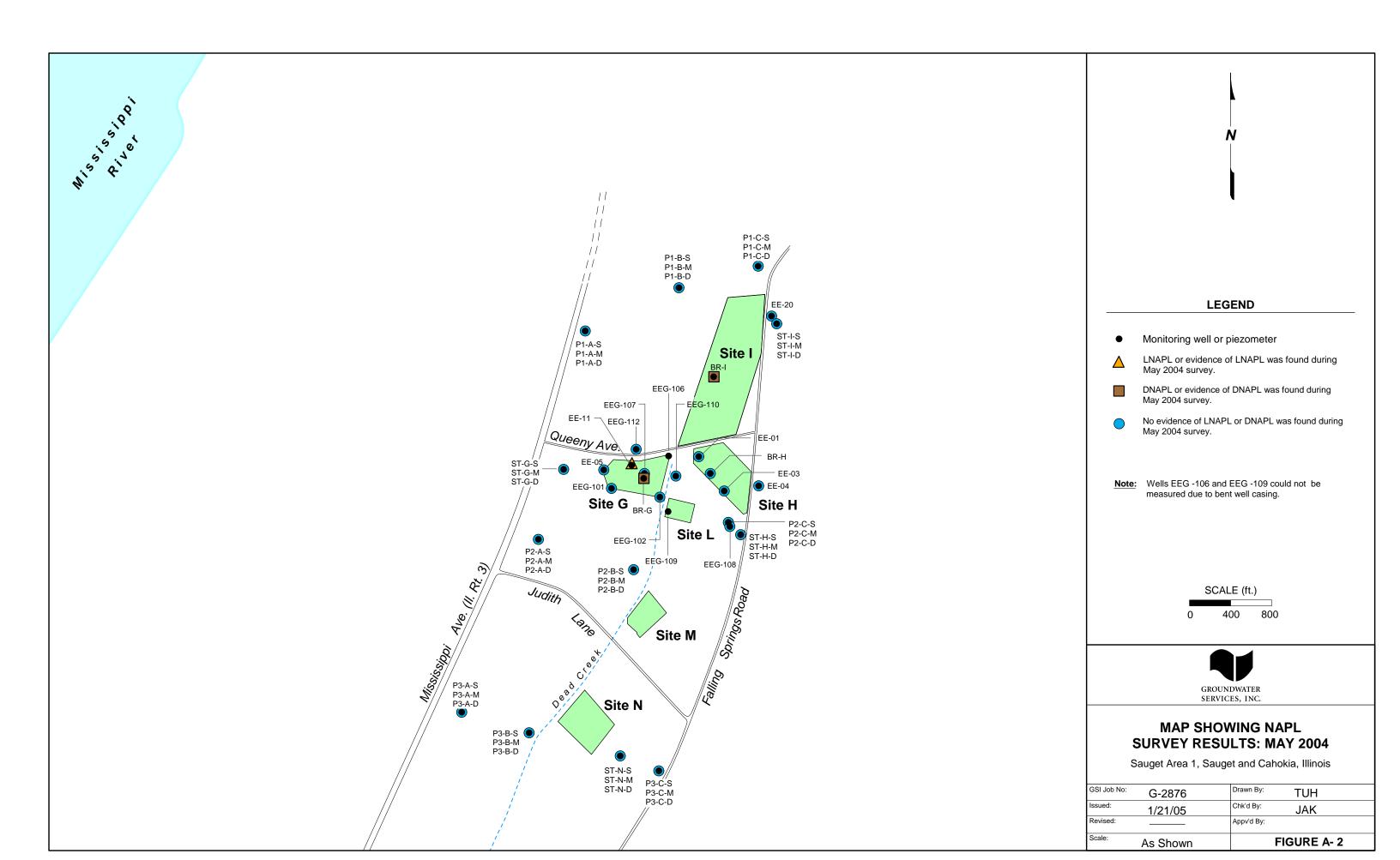
Table A-1 Results of May 2004 NAPL Survey

Sauget Area 1
Sauget and Cahokia, Illinois

Well I.D.	Measured Depth to Water (ft below toc)	Measured Total Depth (ft below toc)	Measurements or Observations of Free Phase LNAPL or DNAPL?
ST-I-S	14.00	15.07	No
ST-I-M	13.78	45.15	No
ST-I-D	13.63	79.09	No
ST-N-S	**	**	**
ST-N-M	8.37	41.69	No
ST-N-D	8.19	78.68	No
BR-G	16.45	135.08	Yes - DNAPL (see Note 3)
BR-H	15.14	117.68	No
BR-I	17.52	151.11	Yes - DNAPL (see Note 4)

Notes:

- 1) ** = Water level and or NAPL measurement could not be conducted due to bent well casing or subsurface obstruction.
- 2) Well EE-11 contained approximately 8 to 9 feet of LNAPL. Measured depth to top of LNAPL was 13.82 feet on May 17, 2004. A total of approximately one gallon of LNAPL was removed during a recovery test conducted on May 19, 2004.
- 3) There was no measurable thickness of DNAPL in BR-G. There was some evidence of the presence of a minor amount of DNAPL in BR-G, based on inspection of a cotton string and a clear bailer lowered to the bottom of the well. A DNAPL recovery test was attempted at this location. No free phase DNAPL or DNAPL droplets were noted in the produced fluids.
- 4) At BR-I, there was some evidence of the presence of a minor amount of DNAPL based on inspection of a cotton string and clear bailer lowered to the bottom of the well. The bailer contained approximately 1/8th inch of DNAPL when it was retrieved. A DNAPL recovery test was attempted at this location. No free phase DNAPL or DNAPL droplets were noted in the produced fluids.





EVALUATION OF SEPTEMBER 1999 DNAPL THICKNESS DATA ON TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

ATTACHMENT 3 – ADDITIONAL FIELD NOTES FROM 1999-2000

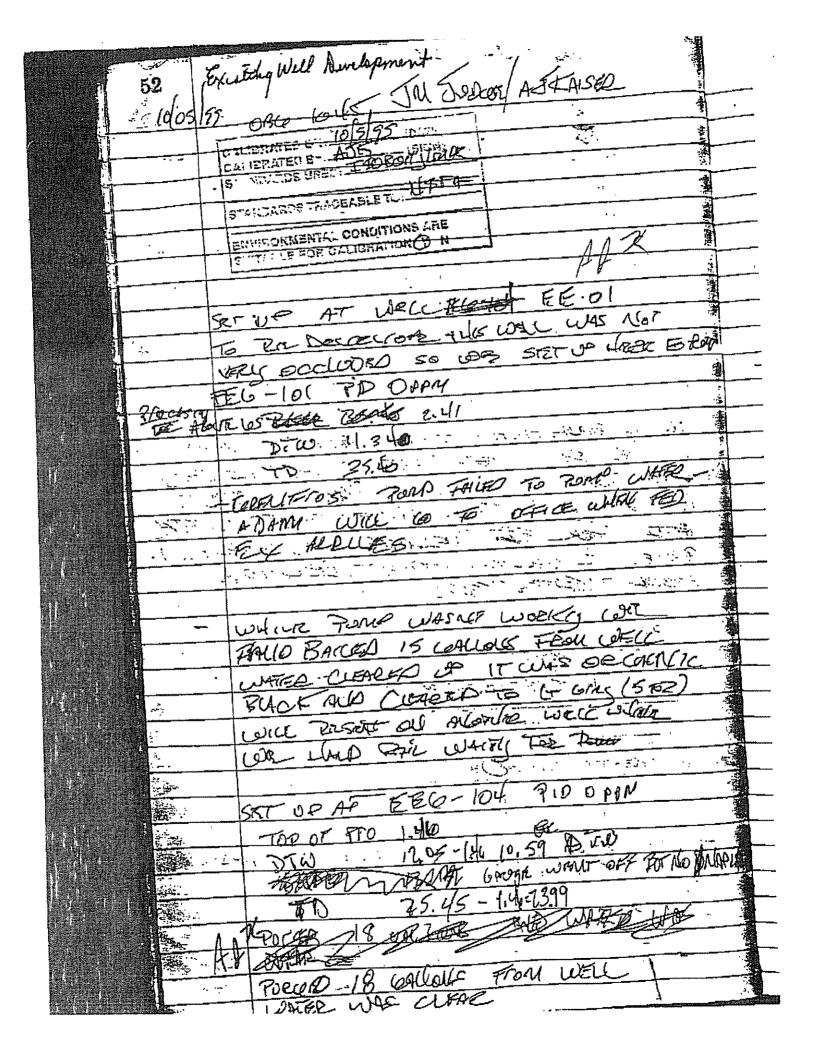
Field Notes from Well Development, October 4-6, 1999
(Source: pages 50-57 from Book 5, Volume 9 of Field Sampling Report, O'Brien & Gere, 2000)

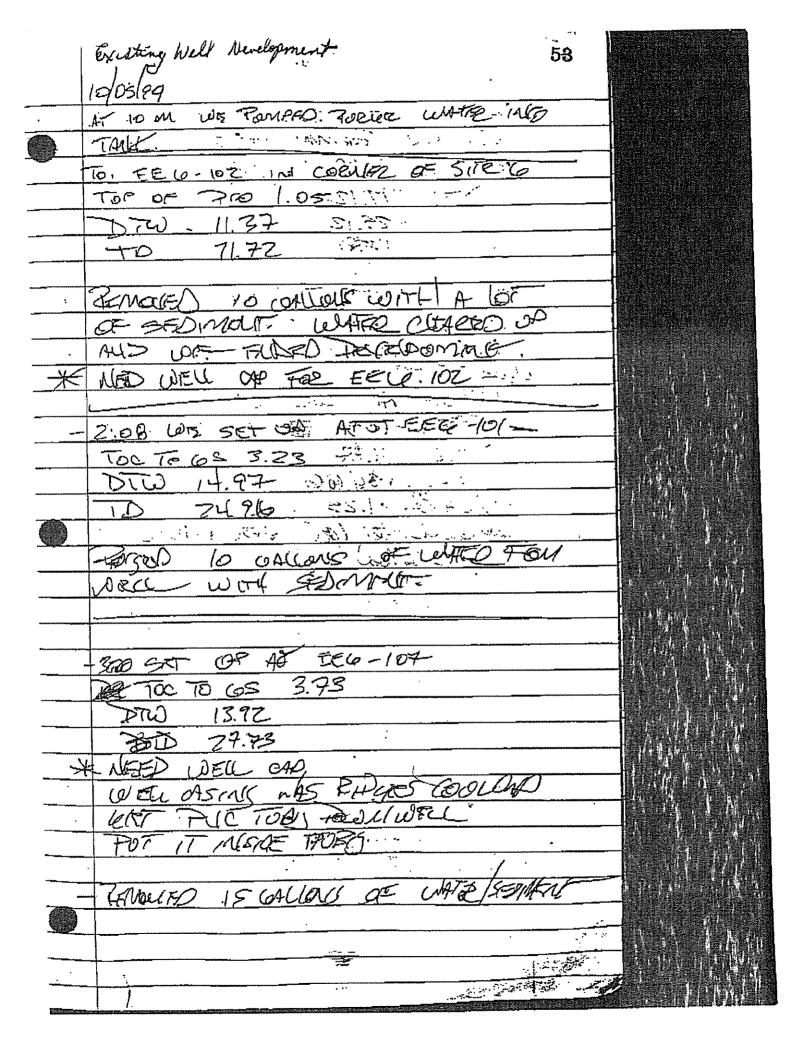
Field Notes from Groundwater Sampling, October 7-13, 1999
(Source: pages 97A-1 to 97A-11, Volume 1 of Field Sampling Report, O'Brien & Gere, 2000)

Field Notes from Static Water Level Surveys: December 1999, March 2000, June 2000 (Source: pages 108-110, 157-159, and 164-166 from Book 5, Volume 3 of Field Sampling Report, O'Brien & Gere, 2000)

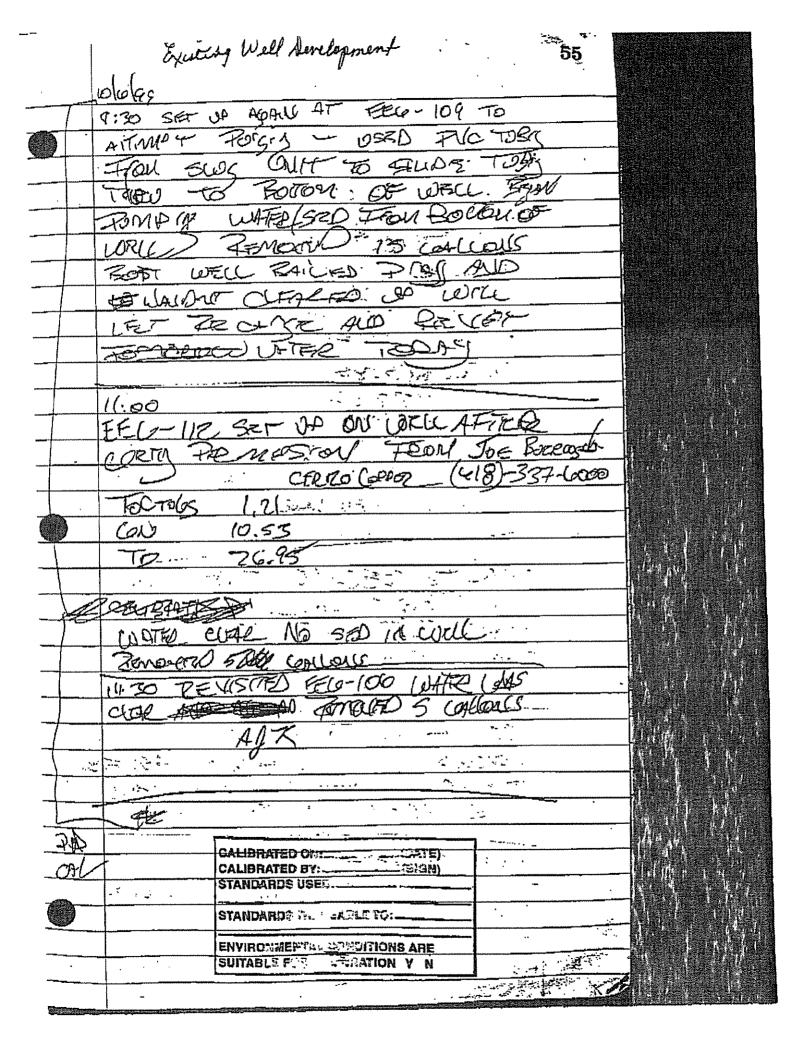
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A E	E6-107	28.46	28 ·26	4.8_	3/4	
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			33	.25	Sa or	
4	EE-01	3275 ·	33		0.5	
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	EE6 - 103		- 2	7	0.51	
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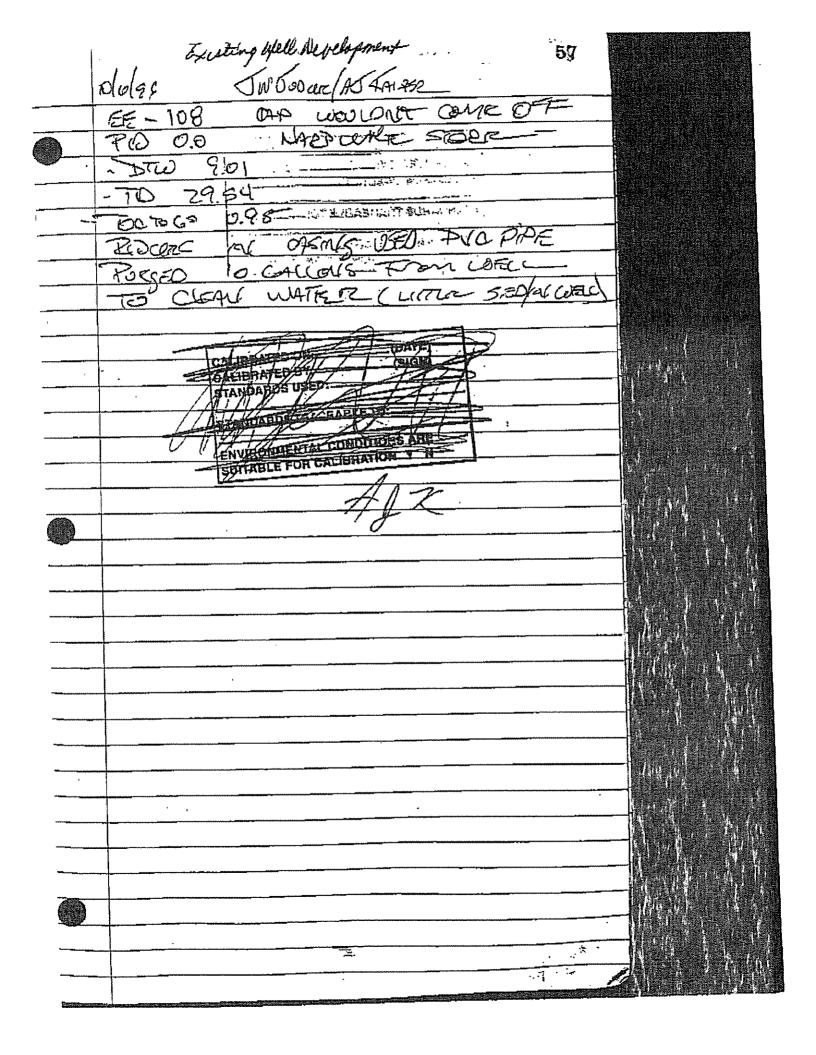




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BRIEN & GERE ENGINEERS			Weather:	SULINI TO	5
10/4/01	ite w		Well Number: Project Number:	7.3348	
to Location 51JGET, I			Evacuation Metho	d 7464514111	
ersonnel: ユメコックム				PID 0.0	PPM
•	1.35 n- 1.90 = 19.4 0.36 n- 1.90 = 8.4	Water Volume Ift.	for:		
Depth of Well " Depth to Water "	0.38th - 190 = 8.4	Dian Dian	neter Well = 0.163 X I neter Well = 0.653 X I	LWC	
angth of Water Column	0.4 는ft. 1 : 구주 gal.(6)	6 Dian	nater Well = 1,469 X	wc	
/clume of Water in Well IX Volume of Water in Well	5, 3(e gal.(6)	Volume removed l	safore sampling	5.36	बो/हा
A A COURSES TO A	,	Did well go dry?	Ye	sa No <u>'</u>	
				,	Other, Specify)
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Water parameters:		E & ***		Conc	luctivity Reading
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	and the second s	7.0 Standard	7.0	84 S Stan 1413 S St	
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53.4 after 1.79 (gal.)	312.9	after(gal.)	₩ . \$4	after 3.38	(gal.) 7300
U.95 after 7.95 (gal.)	59.4	atter 5.3(c (gal.)	出。王	after 3, 30	(gal.) 7,380 (gal.)
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after(gal.)				Washer.	
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Sheen/Free Product	新 <u>店</u>	Sne	alaties transce		- (00,100)
	\$ (8760B) SVOI 35-080, 765T/	0s (8270C) A	ETALS 1601931	74784)CVANII	DE (40100)
Sample Parameters: VOC	35-1000 TEST/	46EBS(808144	GISIAL DIOX	IN 182401 7	Conductivity
Container duce	Container Type WITEF OLD	# Collected Fit	tered Preservany	U.71 64.1	1
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Monitoring Well Integrity Che	eklist.				Vo V
Well identification number of	early marked?	= 42 min 1 + 2 + 2 + 2 + 2 + 4 + 4 + 4 + 4 + 4 + 4		Yes	Vo
Well identification number of Well covers and locks in go	d condition and secure?	*	Man 19	Yes	No L
Well covers and locks in got la the well stand pips vertical Is the concrete ped and surf	ace seal in good condition?		NOARE	Yes	No
Are soils surrounding the wa	H pad eroded?	\$ \$ * * * * * * * \$ \$ \$ \$ \$ \$ * * * * *	THE	Yes	No
Is the concrete ped and surf Are soils surrounding the war to the PVC well casing in go	a annular space between th	o well stand pipe and R	VC casing?	Yes	No Z
ere standing water in the stand pipe vented at the stand pipe vented at the stand depth of the standard pipe stand	he base to provide drainage wall smunded correspond wi	th original well complete	on depths?	Yes	No
	' *	-			
NOTES: Top of easing	elevation: 8.84 [8	(97A-1		
ון שומפע שומים	r Elevation:				

· .		
	Ground Water Sampling Log	
O'BRIEN & GERE ENGINEERS, INC.	Weather:	SURVIG 70 OF
Name: SOLUTTA TUC	Well Number:	7.3548,- 0.4
	Project Number: Evacuation Metho	
Personnal: STAL DUBLAC +3 day		
•		Mad 6.0 Ole
24.50 ft -1.05=	2), US Water Volume /ft. for:	
Depth of Well Depth to Water 11.40 tt -1.05	(2 Diameter Well = 0.163 X I 4 Diameter Well = 0.653 X I	LWC
Langth of Water Column 11.01 ft.	5 Diameter Well = 1,469 X	IWC
Volume of Water in Well		مارمی
3X Volume of Water in Well 3.40 gal.(s)	Volume removed before sampling	
!	Did well go dry?	es No/_
		(Other, Specify)
X Top	of Well Casing Top of Protective	Casing
*Measurements taken from 1_X_11op	- · · · · · · · · · · · · · · · · · · ·	
Water parameters:		
	pH Reading	Conductivity Reading
Temperature Reading	4.0 Standard	84 S Standard
	7.0 Standard	1413 5 Standard
77890 initial 791	initial 4.73	initial
AL Matter 1 BO (gal.)	after 1.80 (gal.) (2.76	after (.8 (gal.) (910)
1 (3) after 3. (20 (gal.)	after 3.60 (gal.) 7.00	after 3 (QO (gal.) 7 000 after 5,40 (gal.) 7000
(700 Jotter 4. 4a (921) 77:5	after (gal.)	after (gal.)
gel.)	after (gal.)	after (gal.)
after (gal.)		
Water Sample: 10:10 A-M		
Time Collected:		
nysical Appearance at Start	Physical Appearance at Sa	<u>eniloms</u>
	Color	CIFAR_
Color WOUTE	Odor	NONE
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Sheen/Free Product Nove	Sneenview Product	ING 171/704 CHANIDE POLCE
Voc 6 (82608	Sheen/Free Product SVOCs(8270c) METALS (GO 1/50 BC (GO 7/4/9/5/4	12/11/12/2017
Sample Parameters: To D. 1500 D	SVOCS (82+0C) METALS COU EST/HELBS (909/A/8/5/4) DIORIM (0560)
Jamper Gamer PCBS GOV 1	# Collected Filtered Preservative	p pH Temp. Conductivity
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		, 1
Monitoring Well Integrity Checklist:		
		Yes No No
Well covers and locks in good condition and sec	ше?	Yes V
Is the well stand pips vertically aligned and secu	#	Yes No L
is the concrete pad and surface seal in good co		Yes No No
Are soils surrounding the west pad elouev:	onon the well stand pins and PVC casing?	Yes No No
's there standing water in the annular space bet	ween the well stand pipe and PVC casing?	Yes No No
the stand pipe vented at the base to provide t	rainage?	Yes No
Oces the total depth of the well sounded corres	ramage? and with original well completion depths?	
NOTES: Top of casing elevation:		i,
		1
Depth to Ground Water: Ground Water Elevation:	97A-2	

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•				•
O'BRIEN & GERE ENGINEERS, INC.		Ground Water Sampling L		
0/2/00		Weather:		700
Site Name: SOLETTAE		Well Number: Project Numbe	FEC - 10.	
Personnel: TW SWORM AND	<u> </u>	Evacuation Me	thod: <u>1948.45.74</u> [
	3 = 28, 37 (Water Volu		>10 0.0 P	PM
Depth of Well* Depth to Water * Length of Weter Column Volume of Water in Well 3X Volume of Water in Well 4.3 gal.(s)	3= 9.2% Volume rer	②Diameter Well = 0.163 4" Diameter Well = 0.653 6" Diameter Well = 1.469 noved before sampling	x.twc x.twc 9.3	3mf (e)
	Did well go	ary?		<u> </u>
*Measurements taken from	Top of Wall Casing	Top of Pretect		(Other, Specify)
Woter parameters:	ı			
Temperature Reading	4.0 Standa	pH Reading	Con	ductivity Reading
TUES	7.0 Stand: 10.0 Stand	ard	84 S Stan 1413 S St	
2190 initial 91.8	initial	6.46	initial	(gal.) 28.3000
1/244 (after 5.11 (gal.) 28. 17.1	after 3. 4	(gal.) 6.5 (gal.) 10.10	after (p. 72	(gal.) 3. 6000
(534) after 9 33 (gal.) (03.1)	after 9.33	(gal.) (a.13) (gal.)	after Q.35	(Bal) - 5000
29(6) after (gal.)	after	_(g2l.)	after	(gal.)
Water Sample: 6:00 PM	•	JIMIAL DE	ploe of corl	HgW
Physical Appearance at Start ,		Physical Appearance at	Sampling	5745
· Comman la Blance	<u>L</u>	Color	(15 (bace)	,
Color GEOUTE		Odor Turbidity (> 100 NTU's)	7510 (JEP	
Turbidity (> 100 NTUs) 119 FM Sheen/Frae Product SCAFE SCE	54 (02 700	Sheer/Free Product	100 PHO AL	Cuga 410-19018
VOC 287608	SUOCS (8270C) METALS (60	1015/ +440/	271
Sample Parameters: BBS - 1860				と行り Conductivity
Container Size Container		Filtered Preservat	ive pH Temp.	2680
SOUL POU		N HAIDS		
500 ML Poly	2	NA NAOH		
IL AME		12		
250 ml Roly		N =		
	1			
Monitoring Well Integrity Checklist				
Well identification number clearly marked? Well covers and locks in good condition and s			Yes N	<u> </u>
is the well stand pipe vertically aligned and se is the concrete pad and surface seal in good	cure?	NONE	Yes N	o
Is the concrete pad and surface seal in good Are soils surrounding the well pad eroded?	zonowan?		Yes	
Are soils surrounding the well pad eroded? Is the PVC well casing in good condition? Is there standing water in the sinular space to the stand pipe vented at the base to provide	acramade/		۱۰ خسس د1323	
Does the total depth of the well sounded com	epond with unginal wall com	ipletion dapths?	Yes N	/
NOTES: Top of casing elevation: Depth to Ground Water: Ground Water Elevation:	Bob.	ETS OF PULLE	K WHIEL OF	97A-3
Ologica same mostrosis			9.	<u> </u>

O'BRIEN & GERE ENGINEERS.	INC	(Sround Wate	ar Sampling Log			
			151	Ak	DIN (ACT DAY	
ata: 10/8/95	א מפרייי יי			leather:	EECO-		
Site Name SOL 4	SITE CO			/ell Number: roject Number:	7354	Z -	
المستورك مرواه والمستحدد والراسا		-100000		vacuation Method:	235A	HUI CE	PURIT
Personnel: MAJULCE	DARBUS, INC	MO-CAC	E)				
,	i ka . Tanada	A) A Time III	· · · · · · · · · · · · · · · · · · ·		(1) (1)	0 PA	•
Depth of Well *	506 A - 3.23 21	1.83 Water Volu	rpe /it. for:	Well = 0.183 X LV	VC.	8	30-
Depth to Water "	<u>2.65</u> た 5.8タ _{ミ リ}	1	/ Ulameter!	Well = 0.653 X LV	VČ] -	
Length of Water Column	9.5 <u>9</u> 1	- 1	4 Districts	Well ≈ 1.469 X LV	VC		
Volume of Water in Well	1.1.7 gal.(5)	<u> </u>	O Digitiero	1400 ~ 1.403 V F1		J	
3X Volume of Water in Wall	प्रक्रि _{Bal.} (s)	\/niceen com	noved before	samalina	-5.0	gal.(:	εV
***		Did well go		Yes		No P	7
***	,	Mr us An	y.	•	****		TOTTO W
						(Oth	er, Specify)
*Measurements taken from	Top of W	fell Casing	T	op of Protective C	asing		
-Messelletter rakelt trott	Language and the second	•					
Water parameters:							
A hayant bases and the same		·			f	0	Sala Barata
Temperature	Reading		pH Reading		<u> </u>	Canauct	ivity Reading
		4.0 Standa	***		046	: Ch	4
<u></u>		7.0 Standa				Standard	
TISES	1042	10.0 Stand		706	141 initia	3 S Stand:	शाव व
	initial (09.5	initial	(mmi 3	20 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	ITILIA netema)	67 (gai) दिस्छ्य
1490 after 1.62 (gal.)	<u>(19.10</u>	after 152	(gai.)	GT-FIX	aller	74 (gal	: 475%
After 3.7.4 (gal.)	124-	after 3, 154	(gal.)	7.00	anar after	. 674 (grai	
after 5 (gal.)	2011	after	·((1 -)		aftar	(gal	
Y. > 1 after(gal.)	-	after	.(gal.)		after	(gal	
after(gal.)	`	after	.(gal.) _		a,w,		**/
	•		,		1		
Water Sample:	20						
ima Collected: (C):							
Physical Appearance at Start			Physical An	pearance at Samo	nnile		
I PARAMETERS TO SERVICE SERVIC							
1-11 Farmer Limbonian into the maris			(1)11000011				
6	Stecon/		Color		بتماح	42_	
Color L' 6	STELLON/		Maria				
Color U.S. S. ALCON Turbidity (> 100 NTUs) U47	do C		Color Octor Turbidity (>	100 NTU's)	بتماح		
Color U.S. G. A.C.u. Odor A.C.u. Turbidity (> 100 NTUs) U.U.	do Coo		Color Odor Turbidity (> Sheen/Free	100 NTU's)	CG Non 3.7	is .	
Color U.S. G. A.C.u. Oder Turbidity (> 100 NTUs) U.U.	do Coo		Color Odor Turbidity (> Sheen/Free	100 NTU's)	CG Non 3.7	is .	1/N= / 9010
Color U.S. G. A.C.u. Odor A.C.u. Turbidity (> 100 NTUs) U.U.	do Coo	067 (8530C	Color Odor Turbidity (> Sheen/Free	100 NTU's)	CG Non 3.7	is .	1/DE (9010
Color U.S. G. A.C.u. Odor A.C.u. Turbidity (> 100 NTUs) U.U.	do Coo	00's (8270C	Color Odor Turbidity (> Sheen/Free	100 NTU's)	CG Non 3.7	is .	1/DE (9010
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PC.B.	100 100 16 (8760B\ 540 5680, 765T(ock (8270C Heers 180	Color Odor Turbidity (> Sheen/Free META 81 A/81	100 NTU's) 1 Product (5 (100108/	CLF. -3.7 -3.4 -3.430A) CIMO Z	CUM 90)	I/DE (9010
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCBC Container Size	Container Type	# Callected	Color Odor Turbidity (> Sheen/Free \$1 A/81:	100 NTU's) Product (COLOS/ 14) 10) Preservative	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCBC Container Size	(8760B) SVO SGEOR SVO Container Type	# Collected	Color Odor Turbidity (> Sheen/Free META 81 Filtered A	100 NTU's) 1 Product (5 (100108/	CLF. -3.7 -3.4 -3.430A) CIMO Z	CU MA (20)	Conductivity
Color Oder Turbidity (> 100 NTUs) Sheer/Free Product VOCS Sample Parameters: PCS Container Size 40 MU	Combiner Type LOCAL SUCCESS COMMITTEE LOCAL SUCCESS LOCAL SUCC	# Callected	Color Odor Turbidity (> Sheen/Free \$1 A/81:	100 NTU's) Product (S ((ao(08) S(A) b(0) Preservative HCL	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheer/Free Product VOCS Sample Parameters: PCBC Container Size UO MU 1 L 5 000 M L	100 100 16 (82LOB) 5 VI 5 GBO, 7EST (Container Type 101455 10455 10455 10455 10455	# Collected 5 7 7 1	Color Odor Turbidity (> Sheen/Free META SI A/81	Preservative	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCBC Container Size UO MU SOOM L SOOM L SOOM L	(82608\ 540 (82608\ 540 5680, 7657(Container Type 04485 POW(# Collected	Color Odor Turbidity (> Sheen/Free META 81 Filtered MI MI MI MI MI MI MI M	100 NTU's) Product (S ((ao(08) S(A) b(0) Preservative HCL	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheer/Free Product VOCS Sample Parameters: PCS Container Size UO MU SOOM U SOOM U 1 C	(8260B\ 540 (8260B\ 540 5680 7657(Container Type 01485 AMBOL POUT	# Collected 5 7 7 1	Color Odor Turbidity (> Sheen/Free META 81 A 81 A A A A A A A A A	Preservative	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCBC Container Size UO MU 1 L 500 ML 1 C	100 100 160 (82608\ 540 5680, 7657(Container Type 104856 104966 104966 104966 104966 104966 104966	# Collected 3 2	Color Odor Turbidity (> Sheen/Free NETA SI A/81 NETA NETA	Preservative	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCBC Container Size UO MU 1 L SOOM L SOOM L 1 C 1 C	100 100 160 (82608) 540 5680, 7657(104856 104866 104966 104966 104966 104966 104866 104866 104866 104866 104866	# Collected	Color Odor Turbidity (> Sheen/Free META 81 A 81 A A A A A A A A A	100 NTU's) Product (S ((aolog/ SI 4) DIO) Preservative HCL JAIO3/ AJ+O4	CLF. 3.7 7470A) CIMIT T	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCBC Container Size UO MU 1 L 500 ML 1 C	100 100 160 (82608\ 540 5680, 7657(Container Type 104856 104966 104966 104966 104966 104966 104966	# Collected 3 2	Color Odor Turbidity (> Sheen/Free NETA SI A/81 NETA NETA	Preservative	CLF	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(100 100 160 (82608) 540 5680, 7657(104856 104866 104966 104966 104966 104966 104866 104866 104866 104866 104866	# Collected 3 2	Color Odor Turbidity (> Sheen/Free NETA SI A/81 NETA NETA	100 NTU's) Product (S ((aolog/ SI 4) DIO) Preservative HCL JAIO3/ AJ+O4	CLF	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(Container Type Container Type COLASS AMBGE POLY TOCH OMBRE OMBRE OMBRE POLY	# Collected 3 2	Color Odor Turbidity (> Sheen/Free NETA SI A/81 NETA NETA	100 NTU's) Product (S ((aolog/ SI 4) DIO) Preservative HCL JAIO3/ AJ+O4	CLF	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product VOCS Sample Parameters: PCS Container Size 40 ML 1 L 500 ML 1 C 1 C 1 C 7 SD ML	BOL 1000 16. (82LOB) SUC SCONTAINT Type CONTAINT Type CONTAINT TYPE CONTAINT TYPE AMBRE AMB	# Collected 3 2	Color Odor Turbidity (> Sheen/Free NETA SI A/81 NETA NETA	100 NTU's) Product (S ((aolog/ SI 4) DIO) Preservative HCL JAIO3/ AJ+O4	CLF	CU MA (20)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(100 100 100 100 100 100 100 100	# Gollectard 35 2 1 1 1 1 1 1 1 1 1	Color Odor Turbidity (> Sheen/Free META SI A/81 MILTA	100 NTU's) Product (S ((ao(00)) S(A) b(0) Preservative HCL AVA-04 H NAO3	CLF	CUAMA PO)	CONDUCTORAY
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\lambda C \) \ \(\lambda C \) Sample Parameters: PCB Container Size \(\lambda C \) \(\lambda	Container Type Container Type CARS POLY TOCY ANGE	# Collectad	Color Odar Turbidity (> Sheen/Free META 81 A/81: Filtered	100 NTU's) Product (S ((ao(03/S)A) b(0) Preservative HCL AAAO4 H AAO3	CLF	CUAMI PO)	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(Container Type Container Type COLASS AMERICA	# Collectad	Color Odor Turbidity (> Sheen/Free META SI A/81 A A A A A A A A A	100 NTU's) Product (S ((ao(03/ S) 4) b(0) Preservative HCL JATO3 H NO4	2(10A) 3.7 7(10A) 2/M/2 1 272 1	CUAMI PO)	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(Container Type Container Type COLASS AMERICA	# Collectad	Color Odor Turbidity (> Sheen/Free META SI A/81 A A A A A A A A A	100 NTU's) Product (S ((ao(03/ S) 4) b(0) Preservative HCL JATO3 H NO4	2(10A) 3.7 7(10A) 2/M/2 1 272 1	CUAMA PO)	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\lambda \colon \col	Container Type Container Type COMSS AMERIC	# Collected	Color Odor Turbidity (> Sheen/Free META SI A/81 A/81	Preservative HAD	2(10A) 3.7 2(10A) 2(MX Z) 2(MX Z)	CUAMA PO) emp. pd/3 No No No No	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\lambda \colon \col	Container Type Container Type COMSS AMERIC	# Collected	Color Odor Turbidity (> Sheen/Free META SI A/81 A/81	Preservative HAD	2(10A) 3.7 2(10A) 2(MX Z) 2(MX Z)	CUAM PO Semp. PO Semp.	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Course AMSES POU AMSES AMSES AMSES AMSES AMSES AMSES AMSES Condition and secure? aligned and secure? as seal in good condition and eroded?	# Collected S Z I Z Z	Color Odor Turbidity (> Sheen/Free META 81 AV AV AV AV AV AV AV A	Preservative HCL HHO;	2430A) 3.7 2430A) 21M(27) 21721	CUAM PO Semp. Sem	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Course AMSSS POU AMSSS POU AMSSS POU AMSSS AMSSS AMSSS AMSSS AMSSS AMSSS Condition and secure? aligned and secure? aseal in good condition? aseal in good condition?	# Collected S S S S S S S S S	Color Odor Turbidity (> Sheen/Free) ME-74 81 A/81 Filtered A/4 A/4 A/4	Preservative HCL HHO; Ye NANTE YE	2430A) 3.7 2430A) 21M(27) 2721	CUAM PO Semp. Sem	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Course Ty	# Collected 3 2 1 7 1 7 1 7 1 7 1 1 7 1 1	Color Odor Turbidity (> Sheen/Free) ME74 81 A/81: Filtered A/	100 NTU's) Product (S ((ao(03) S(A) b(0) Preservative HCL ALO3 ALO4 HHO3 Y ALOA/C-Y Y ng? Y	CUF	CUAN COND NO	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Course Ty	# Collected 3 2 1 7 1 7 1 7 1 7 1 1 7 1 1	Color Odor Turbidity (> Sheen/Free) ME74 81 A/81: Filtered A/	100 NTU's) Product (S ((ao(03) S(A) b(0) Preservative HCL ALO3 ALO4 HHO3 Y ALOA/C-Y Y ng? Y	CUF	CUAM PO Semp. Sem	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Course Ty	# Collected 3 2 1 7 1 7 1 7 1 7 1 1 7 1 1	Color Odor Turbidity (> Sheen/Free) ME74 81 A/81: Filtered A/	100 NTU's) Product (S ((ao(03) S(A) b(0) Preservative HCL ALO3 ALO4 HHO3 Y ALOA/C-Y Y ng? Y	CUF	CUAN COND NO	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Courses Pour Pour AMBRE AMB	# Collected 3 2 1 7 1 7 1 7 1 7 1 1 7 1 1	Color Odor Turbidity (> Sheen/Free) ME74 81 A/81: Filtered A/	100 NTU's) Product (S ((ao(03) S(A) b(0) Preservative HCL ALO3 ALO4 HHO3 Y ALOA/C-Y Y ng? Y	CUF	CUAN COND NO	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Container Type Courses Pour Pour AMBRE AMB	# Collected 3 2 4 7 4 7 1 1 1 1 2 3 4 5 6 7 7 1 8 8 9 1 1 1 1 1 1 1	Color Odor Turbidity (> Sheen/Free ME74 81 A/81: Filtered AI	Product (S (loolog) S(A) blo) Preservative HCL Alloz ALOY H NO; Ye Ye Ye Ye 197.	CUF	CUAN COND NO	CONDUCTORAL
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product \ \(\) \(\	Container Type Container Type Course AMBBE POLY AMBBE POLY AMBBE POLY AMBBE AMBBE AMBBE OURRE AMBBE Condition and secure? aligned and secure? as seal in good condition and eroded? condition?	# Collected 3 2 1 1 1 1 1 1 1 1 1	Color Odor Turbidity (> Sheen/Free ME74 81 A/81: Filtered AI	100 NTU's) Product (S ((ao(03) S(A) b(0) Preservative HCL ALO3 ALO4 HHO3 Y ALOA/C-Y Y ng? Y	CUF	CUAN COND NO	CONDUCTORAL

			See and Motor	Sampling Log		
O'BRIEN & GERE ENGINEERS.	INC.		3LCCHR1 Anarci	Dailburg 203	Ola of No	3000
10/2/99				ather:	Clarby	
ante Name: Solution				ill Number: ject Number: _	7/3548	
Site Location SAUSEC			Eva	acuation Method:	PARASI	HTIC TOME
Personnel: JM A3P					PIA 0.	OPPM
	510 n1.46 = 23.	wh and	151. d			ĭ'''
Depth of Well *	580 n1.46 - 22	Water volu	1989/TL TOT. 2021 Someter V	Vell = 0.163 × LW	/C	
Depth to Water *	<u>1.57</u> -11 [.410 - 11 3.6311.	111 /	4" Diameter V	Veli = 0.653 X LW	/C	
I amount of Water Collation	72/ gal.(s)		6 Diameter V	Vell = 1.469 X LV		J
	. 79 gal.(s)	1/	noved before :	eampling	L. 93	_gai.(s)
		Did well go		Yes	No.	
L. C.			•			(Other, Specify)
	Top of We	. Canina	Т	p of Protective C	asino	(Oaka, Openin)
*Measurements taken from	Op or yve	a Caend	L	· p · · · · · · · · · · · · · · · · · · ·	- · ·	
Water parameters:						
			cH Reading		Ce	nductivity Reading
Temperature	Readerd	4,0 Standa			:	•
1	,	7.0 Standa	erd		* 84 S St	andard Standard
TOR	1914	10,0 Stark initial		CD7	initial	-8110 -
	nitial (01.9)	atter Z. Zlo	·	1.925	after 7. Z	
7840 after 2.76 (gal.) 16.30 after 4.27 (gal.)	71.10	atter <u>11.5</u> 2	(gpl.)	316	: altar 4.≤	
((0,30 after(gal.)	70.5	after	_(gal.)	6. 23/	after (p.f)	(5al.)
after(gal.)		after	_ (gai.) 		after	(gat)
after(gal.)			. 10***		•	
Water Sample: 151	1/2					
ma Collected:	70.2					
Physical Appearance at Start			Physical Ap	pearance at Sam	oling i	
(-co.)	•		Celor		Clear	
Codor UT			Odor		2102+	
Codor Turbidity (> 100 NTUs) 102	70	· · · · · · · · · · · · · · · · · · ·		100 NTU's)	C/,47	70.00
Sheen/Free Product Aubn	<u> </u>	100-10-2	M / A C	FILL CODE	08/74/01	ff cyadios/901
Voc	182 (82 (00B) SI	1445(867	ひしい			
Sample Parameters:	= (8260612) + 680 PEST	7HXXX 5 13	08141	6151A) D	io XAV C	8470
	Container Type	# Collected	Filtered	Cleseivanve	D11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	J. CANTING TAXA
Container Size	روعای	3	W.	707-	8.21. 70.5	8 <i>70</i> 0
10	DABER	<u> </u>	<u> </u>	ALA DOLL		
250 4 500 ML	Powl		+	WYOSI		
300/11	AMRER	i 2,	aj		-+	
	AMBER	<u>4</u>	 X 		- } 	
	AMRER -	 	+-'-		1	
	1					
		!				
The state of the s	vli et					_
Monitoring Well Integrity Chec				**		No V
Well identification number clas						No
						No
Well covers and locks in good is the well stand pips vertically is the concrete pad and surfac	e seal in good condition	,		YY	es	No.
Are soils surrounding the well	bad eloced :	" تصلک	*****************		/es -	No
the PVC wall casing in good there standing water in the	i condition?	ha wali stand oine:	and PVC casi	 ing?	(es	No
thera standing water in the	i pase to bloce collecting	o?			(cs	No
s the stand pipe vented at the Does the total depth of the we	Il sounded correspond w	ith original well cor	npletion depti	19?	/es_ <u></u>	No
i i						
NOTES: Top of casing el	evation:		97A-5			

O'BRIEN & GERE ENGINEERS.	INC.		Ground Wate	er Sampling Log				
Site Name: SOLOTIA- Site Location S. A.O.S.E.T. Personnel: T.M. SUD	<u>'cs'</u>		W Pr	leather: lell Number: roject Number: vacuation Method:			- E <i>EO</i> : 10	
Depth to Water *	230, ft 1, 21 = 19.7 0.5f ft 1, 21 = 9.3 1.76 ft. 1.71 gal.(s) 5.71 gal.(s)	3 (Diameter C Diameter Diameter	wes = 0.163 X LV Well = 0.653 X LV Well = 1,469 X LV sampling	vc <u>vc</u> <u> </u>	55 No _	PAM	
*Measurements taken from	Top of Wal	I Casing	τ	op of Protective C	asing [Other, Spe	
Water parameters:	,	•			ŧ			
Temperature (GUI - etter . (Gul.) 4.08 after C. D.Z. (gal.) after (gal.) after (gal.) after (gal.)	Reading nitial 69.7 GB. 6	4.0 Stands 7.0 Stands 10.0 Stands initial after 1.5 after 3.8 after after after after	ard dard (gal.)	9.57 7.07 8.04	after_ after_	4 6 Stance 413 6 Stance 1.77	andard 70 (gal.) 3	acting , , , , , , , , , , ,
Water Sample: Time Collected: Physical Appearance at Start	: 30		Physical Ap	pearance at Samp	ıling			
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product	8240B) 540C A	== 19770t) MI 14885 (Shean/Free ETALS (1869)	1, 1	4.7	AU II	E (90	(1013)
Container Size		# Collected	Filtered	Préservative	DH DH	Temp.	Conc	uctivity
40 MU	.0V35	3	N	HOL	17-85		9.40	
	DWARD	2.	1//	-7	$\perp j$		ſ)
2504 500 MU	mul i	1	N .	LHV031				
500 140	70641	1	N	MACH	1			
	UM3872_	2	1 1		i)			
سا را	AMERO.	4	I W i		1/1	1	L.	
	AMS(P)	2	1 2/		P	*	V	
		-						
Monitoring Well Integrity Check Well identification number clear Well covers and locks in good of Is the well stand pipe vertically. Is the concrete pad and surface Are soils surrounding the well p Is the FVC well casing in good Is there standing water in the a Is the stand pipe vented at the in Does the total depth of the well NOTES: Top of casing ele Depth to Ground Ground Water El	ly marked? condition and secure? aligned and secure? seal in good condition? ad eroded? condition? Innular space between the brase to provide drainage? sounded correspond with wation:	well stand pipe a	nd PVC casir	NOME YE		No No No No No No No No No		

11.00		Ground Water Sampling Log	
O'BRIEN & GERE ENGINEERS, INC.			SUNKY FUDF
) ata: 10/499.		Weather: Well Number:	ाड्डिक्ट्रेसिट राउन्पर्छ
Site Name: SOLUTION		Project Number:	
Sita Location SALS ET III	ASHASHO_	Evacuation Method	
	•		PW 0.0
Depth of Well Depth to Water Length of Water Column Volume of Water in Well 2.30 g 3X Volume of Water in Well 6.70 g	pl.(5)	4" Diamster Well = 0.653 X LV 6" Diamster Well = 1.469 X LV noved before sampling	NC WC WC No gal(s)
*Measurements taken from	Top of Well Casing	Top of Protective C	Casing (Other, Specify)
Water parameters: Temperature Readin	4.0 Standa 7.0 Standa	urd	Conductivity Reading 84 S Standard 1413 S Standard
TO initial initial initial	70 10.0 Stand initial after 7.30	10.39	initial 7(030) after 2.70 (gal.) 7/20
i oc offer < 72.72 (0%)	69.9 atter 5.22	(gal.) <u>7.49</u>	after <u>5-22 (gal.)</u> <u>7-270</u> after (gal.)
after(gal.)	after	(8ar)	after (gal)
O·20 atter (gal.)	after	_(gal.)	after(gal.)
	(I
Water Sample: (1:30	\$ 13:30 (MSMD)		
ime Collected:	. \$		· · · · · · · · · · · · · · · · · · ·
Physical Appearance at Start		Physical Appearance at San	
clear		Physical Appearance at San Color	CLISAR.
Color CLEAU		Color Odor	CLEAR NOVE
Color Oder Turbidity (> 100 NTUs)	33.10	Color Odor Turbidny (> 100 NTU's)	CLIGE NONE 0.70
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product	151 51 100 - 1002 FOIC NO	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product	CLIAR NOVE NOVE NOVE (CLIANTAE (90/05)
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product	151 51 100 - 1002 FOIC NO	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product	CLIAR NOVE NOVE NOVE (CLIANTAE (90/05)
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product	151 51 100 - 1002 FOIC NO	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product	CLIAR NOVE NOVE AND (90/05)
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (920 Sample Parameters: FC & (151 51 100 - 1002 FOIC NO	Color Odor Turbidiny (> 100 NTU's) Sheen/Free Product ET4-LS (6008 7470 8 p8 A/8 S A)	CLIGE NONE 0.70 MOUTAL (90 (05) CYPLIA (8790)
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (120 Sample Parameters: FC (Container Size)	SUDCs (9270C) MISSON PEST / HIRBS (1)	Color Odor Turbidiny (> 100 NTU's) Sheen/Free Product ET4-LS (6008 4420 8 08 A/8 (51 A) Filtered Preservative	10 KAN (8240)
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (\$200 Sample Parameters: FC & C Container Size Ce Up ML	DIS SUDC (9270C) MI SEO PESIT / HIRBS (1 DILLING # Collected JUNES 2	Color Odor Turbidity (> 100 NTU's) Sheer/Free Product CTALS (600 & TAZO 8 p8 A/8 S/A	CLIAR NONE 0.26 AIDUT AE (90/05) XIO YOU (8240) PH Temp. Conductivity 7.02 68.1 -1893
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (92/4) Sample Parameters: FC/S (Container Size	SUDCs (9270C) MISSON PEST / HIRBS (1)	Color Odor Turbidiny (> 100 NTU's) Sheer/Free Product CTALS (6008 TAZO B D 8 A/8 S A Filtered Preservative A A A A	CLIAR NONE 0.75 AIDUT (0005) AIDUT (0005) AIDUT (0000) AIDUT (0000) AI
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product Container Size	DIS SUDC (9270C) MI SEO PESIT / HIRBS (1 DISTRIBUTION # Collected DISTRIBUTION POLICY AMSED 2 POLICY MISER 2	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo 8 44-0 8 p8 A/8 S A Filtered Preservative A A A Alog	CLIAR NONE 0.76 AIOUT AE (90/05) AIOUT AE (9
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (924 Sample Parameters: FC/S (Container Size (Co	SUDC = (T270C) MI SEO PEST / WIRESS (Container Type # Collected SUSCE # AMSES 2 POLL) I MUSES 2 MUSES 3 MUSES	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product T4-C5 (60 lo & 74-0 8 p8 A/8 [S] A Filtered Preservative A A AAOA A AAOA	CLIAR NONE 0.76 AIOUT AE (90/05) AIOUT AE (9
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (924 Sample Parameters: FC/S (Container Size (Co	DIS SUDC (9270C) MI SEO PESIT / HIRBS (1 DISTRIBUTION # Collected DISTRIBUTION POLICY AMSED 2 POLICY MISER 2	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product CT+LS (60 lo & 44 = 0 8 p8 A/8 S A Filtered Preservative A A A Alog A AAOA	CLIAR NONE 0.76 AIOUT AE (90/03) AIOUT AE (9
Color Odor Turbidity (> 100 NTUs) Sheen/Free Product LOC (924 Sample Parameters: FC/S (Container Size (Co	SUDC = (T270C) MI SEO PEST / WIRESS (Container Type # Collected SUSCE # AMSES 2 POLL) I MUSES 2 MUSES 3 MUSES	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product T4-C5 (60 lo & 74-0 8 p8 A/8 [S] A Filtered Preservative A A AAOA A AAOA	CLIAR NONE 0.76 AIOUT AE (90/05) AIOUT AE (90/05) AIOUT AE (90/05) PH Termp. Canductivity 7.02 (88.) -1073 11 11 4 11 11 4 11 11 4
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product LOC (824 Sample Parameters: FCB (Container Size Ca LO NU (2014 Samue 1 L	SUDCa (T270C) MI SEO, PISIT/HIREBS (Container Type) # Collected SURCE 3 4MSED 2 FOLL) RUBER 2 III 4	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo & 44-0 8 p8 A/8 S A Filtered Preservative A A A AAOA A AAOA A AAOA A AAOA A AAOA A AAOA	CLIAR NONE 0.76 AIOUT AE (90/08) A CYANIAE (90/08) PH Temp. Conductivity 7.02 (8.1 1073) 11 11 11 4 11 11 4
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product LOC (824 Sample Parameters: FCB (Container Size Ca LO NU (2014 Samue 1 L	SUDCa (T270C) MI SEO, PISIT/HIREBS (Container Type) # Collected SURCE 3 4MSED 2 FOLL) RUBER 2 III 4	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo & 44-0 8 p8 A/8 S A Filtered Preservative A A A AAOA A AAOA A AAOA A AAOA A AAOA A AAOA	CLIAR NONE 0.76 AIOUT AE (90/05) A CLYANAE (90/05) PH Temp. Canductivity 7.02 (8.1 1073) 11 11 11 41 11 11 41 11 11 41
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product LOC (82LAC Sample Parameters: FCB (Container Size Cr LOC (82LAC Sample Parameters: FCB (Container Size Cr LOC (82LAC Sample Parameters: FCB () Container Size Cr LOC (82LAC	SO PEST HIRBS (portainer Type # Gottected ANSE 2 POLLY ANSE 2 TOLLY ANSE 2	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-C5 (60 lo 8 44-0 8 p8 A/8 SIA) Filtered Preservative A A AAOA A AAOA A AAOA A AAOA A AAOA A AAOA	CLIAR NONE 0.76 AIOUT AE (90/03) AIOUT AE (90/03) O YOU (8740) PH Temp. Conductivity 7.02 (88.) -1073 11 11 4 11 11 11 4 11 11 4
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product Container Size Containe	DIS SUDCE (TRAC) ME 680, PEST / WIREBS (Container Type # Collected ANSES 2 POLLY 1 MISES 2 (C 2 ASSO COLLECTES) N Hed?	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product ET4-LS (60108 44-0 8 p8 A/8 (SIA) Filtered Preservative A AAOA	CLIAR NONE 0.70 AIDIT AE (90/05) AIDIT AE (90/05) O KON (8790) PH Temp. Conductivity 7.02 (8.) -1073 11 "" "" 4 "" 4 " 4 ""
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product Container Size Containe	DIS SUDCE (TRAC) ME 680, PEST / WIREBS (Container Type # Collected ANSES 2 POLLY 1 MISES 2 (C 2 ASSO COLLECTES) N Hed?	Color Odor Turbidity (> 100 NTU's) Sheen/Free Product ET4-LS (60108 44-0 8 p8 A/8 (SIA) Filtered Preservative A AAOA	CLIAR NONE 0.70 AIDUT DE (90/05) AIDUT DE (90/05) O KON (8790) PH Temp. Conductivity 7.02 68.) -1073 11 11 11 4 11 11 4 Yes No No
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product Container Size Containe	SEO COLLECTO A ASSO COLLECTO A	Color Odor Turbidiny (> 100 NTU's) Sheen/Free Product CT+LS (6008(7470 8 p8 A/8 (5 A) Filtered Preservative A AAOA	CLIAR NONE 0.70 AIDUT A (0005) AIDUT A (00
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product Container Size Containe	SEO COLLECTO A ASSO COLLECTO A	Color Odor Turbidiny (> 100 NTU's) Sheen/Free Product CT+LS (6008(7470 8 p8 A/8 (5 A) Filtered Preservative A AAOA	CLIAR NONE 0.70 AIDUT A (0005) AIDUT A (00
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product COLOR CONTAINER SIZE CO	SO PEST ARES (ontainer Type # Collected JUST 3 ANSE 2 POLL) PUSE 2 II 4 II 4 II 4 ASO COLLECTED A and secure? on and secure? in good condition? oded? FREE TREE TREE TREE TREE TREE TOTAL TREE TOTAL	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo 8 44-0 8 p8 A/8 S A Filtered Preservative A A ALOG A AAOA A	CLIAR NONE O. 70 AIOUT AE (90 (05) A C YAN (87 40) PH Temp. Canductivity P. 02 (8.1 10 7.3 """""""""""""""""""""""""""""""""""
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product COC (\$200 Sample Parameters: FCR (Container Size Co LOC (\$200 Sa	SO PEST ARBS (portainer Type # Collected SOUTH TOPE ANSE Z FOLL) ANSE Z FOLL) ANSE Z FOLL) ANSE Z III 4 III 4 III 2 III 4 III 2 III 4 III 2 III 4 III 2 III 3 III 4 III 3 III 4	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo 8 4420 8 p8 A/8 S A Filtered Preservative A A AAOA A AAOA A AAOA LS (100 SAAC) LS (100 SAAC) ANOTE:	CLIAR NONE 0.70 AIOUT AE (90/05) PH Temp. Conductivity 7.02 (88.) -1073 11
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product COC (\$200 Sample Parameters: FCR (Container Size Co LOC (\$200 Sa	SO PEST ARBS (portainer Type # Collected SOUTH TOPE ANSE Z FOLL) ANSE Z FOLL) ANSE Z FOLL) ANSE Z III 4 III 4 III 2 III 4 III 2 III 4 III 2 III 4 III 2 III 3 III 4 III 3 III 4	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo 8 4420 8 p8 A/8 S A Filtered Preservative A A AAOA A AAOA A AAOA LS (100 SAAC) LS (100 SAAC) ANOTE:	CLIAR NONE 0.70 AIOUT AE (90/05) PH Temp. Conductivity 7.02 (88.) -1073 11
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product Container Size Containe	SO PEST ARBS (container Type # Collected DATE	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo 8 4420 8 p8 A/8 S A Filtered Preservative A A AAOA A AAOA A AAOA LS (100 SAAC) LS (100 SAAC) ANOTE:	CLIAR NONE 0.70 AIOUT AE (90/05) PH Temp. Conductivity 7.02 (88.) -1073 11
Color Oder Turbidity (> 100 NTUs) Sheen/Free Product COC (\$200 Sample Parameters: FCR (Container Size Co LOC (\$200 Sa	SO PST HEBS (portainer Type # Collected JUNES # ANSE Z FOLL) ANSE Z FOLL) ANSE Z III # III	Color Oddr Turbidity (> 100 NTU's) Sheen/Free Product T4-L5 (60 lo 8 4420 8 p8 A/8 S A Filtered Preservative A A AAOA A AAOA A AAOA LS (100 SAAC) LS (100 SAAC) ANOTE:	CLIAR NONE 0.70 AIOUT AE (90 (03) PH Temp. Conductivity F.02 (88.1 10 73) II

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O'BRIEN & GERE ENGINEERS	INC		Grauna Web	er Sampling Log		
					SURLY 7	O (8)
to: P/1/99,				/eather: /ell Number:	FEG-189	
Site Location SAUCEL	· L			roject Number:	73948	
Personnet: OM 29NC				vacuation Method		こじじ チンパー
	505 n-1.25=73 7.10 n-1.25=10 12.85 n			710 0.	O PPM	
Death of Well	505n-1.25=73	80 Water Vo	ume /ft. for:			
Depth to Water *	2.10 R-1.25=10	.05	Z Diametar	Wed = 0.163 X L\		
Length of Water Column	<u>z.(51.</u>		4" Utameter	Well = 0.653 X (.) Well = 1.469 X (.)		
	<u>Z, 1) </u>	<u> </u>			1	
3X VOIDING DI TTERMINI IN TTERMI	المستعملية		moved before	sampling	(<u>) () () () () () () () () () () () () ()</u>	al (e)
		Did well g	o ary?	1 65	·	<u></u>
						(Other, Specify)
*Measurements taken from	Top af W	ell Casing	T	op of Protective C	Cesing	
	V					
Water parameters:						
Temperatur	n Reading	40600	pH Reading		Conc	tuctivity Reading
TOLB		4.0 Stand 7.0 Stand		····	84 S Stan	dard
19000	71 -	10.0 Sta			1413 5 50	andard
	initial (0.7	initial		7.77	after 7.1	7330 (0al.) 2540
图 -after Z-1[[gal])	70.9	after 2.11	(gal.) <u></u>	/1746 -		(gal) <u> </u>
after <u>U.22</u> (gal.) after <u>L.23</u> (gal.)	الشا	after	_ (gal.)			(gal.)
after (gal.)		after	(gal.)			(gal)
after(gal.)	***************************************	after	(gal.) _		after	(gal)
Water Samole:	- -				•	
Time Collected:	<u>. co</u>					
Physical Appearance at Start	-	4	Physical A:	pearance at Sam	pling	
Private Apparatic accent			·		C 1540	
Color (PAL)			Color			
			· Odor		MODIE	
Odor AOUNTUS 100 NTUS 100 N	7		Odor Turbidity (>	100 NTU's)	NOVE-	
Turbidity (> 100 NTUs) 160.1	ar .		Turbidity (>	a Demolisment /	172	1105 (95108)
Turbidity (> 100 NTUs) (#0.) Sheen/Free Product ALEA	(19260B) 5(6	<u> </u>	Turbidity (> Sheen/Free) METAL	S (GOOD) 7	1-72- HAOF) CYA	110E (70(0B)
Turbidity (> 100 NTUs) (#0.) Sheen/Free Product ALEA	(19260B) 5(6	C=(87700	Turbidity (> Sheen/Free) METAL	S (GOOD) 7	1-72- HAOF) CYA	[10E (70(0B)
Turbidity (> 100 NTUs) (400 NTUS)	16 (8260B) 540 16 (8260B) 540	5/N4E35	Turbidity (> Sheen/Fred) METAL (9081A/9	S (GOLDE) =	HADAY CYAL OXIN (82	(%)
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALPA CS Sample Parameters: PC & Container Size	(82(00B) 5(0 (82(00B) 5(0 (80,765) Container Type	CS (8770 C S / NFL 39 (# Collected	Turbidity (> Sheen/Free) METAL	S (GOLDE) =	1-72- HAOF) CYA	(10) (70(08) (90) Conductivity 2470
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALPL	16 (8260B) 540 16 (8260B) 540	5/N4E35	Turbidity (> Sheen/Free) METAL 9081A/9	Product S (GOLOB/F 15(A) Di Proservative	177 Novie 1470+) CyA	(%) Conductivity
Sample Parameters: PCB	(82(00B) SVO (80,765) Container Type	5/N4E35	Turbidity (> Sheen/Free) ME(4) (JOBLA(5) Filtered A	Preservativa HN03,	DENIE CYAL OXIN C 82 I pH Temp. The little control I the lit	Conductivity ZY FO
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALEA	(82(00B) 5(0 ; (82(00B) 5(0 ; (80,765) Container Type CLASS CM SQ POW	5/N4E35	Turbidity (> Sheen/Free) ME(4) (JOBLA/S	Product S (GOIOS) 3 Preservative HCL	1-72- New 15- 1470+) Cy Al OXIN (82 1 pH Temp. 1461 167.1	Conductivity 2470
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALEA (O.C.) Sample Parameters: PCB (Container Size)	(82(00B) SVO (80,765) Container Type 0455 4486	5/N4E35	Turbidity (> Sheen/Free) ME(4) (JOBLA(5) Filtered A	Product S (GOIOI) 3 Preservative H CL HN03 NA. 64	1-72- New 15- 1470+) Cy Al OXIN (82 1 pH Temp. 146 UT.1	Conductivity ZY FO
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALEA	Container Type Container Type CLASS AMSE	F AGNected # Collected	Turbidity (> Sheen/Free) ME(4) (908LA/9 Filtered N	Preservativa HN03,	1-72 Novie 1470+) Cy Al OXIN (82 1 pH Temp. 144 15-1	Conductivity ZY FO
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALM OC: Sample Parameters: PCB Container Size U) (W) 1 L L L L L L L L L L L L L L L L L L	Container Type Container Type CLASS AMBRE AMBRE AMBRE	F ACCEPTED	Turbidity (> Sheen/Free) ME(4) (908LA/S	Product S (GOIOI) 3 Preservative H CL HN03 NA. 64	1-72 Novie 1470+) Cy Ai 0xin(82 1 pH Temp. 146 147. 1 11 11	Conductivity ZY FO
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALM OC: Sample Parameters: PCB Container Size U) (W) 1 L L L L L L L L L L L L L L L L L L	Container Type Container Type CLASS AMBRE AMBRE	F AGNected # Collected	Turbidity (> Sheen/Free) ME(4) (908LA/S	Product S (GOIOI) 3 Preservative H CL HN03 NA. 64	1-72 Novie 1470+) Cy Ai 0xin(82 1 pH Temp. 146 147. 1 11 11	Conductivity ZY FO
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALEA	(82(00B) SVO (82(00B) SVO (80,765) Container Type CLASS 4MSE - 70LU - AMBER	F ACCEPTED	Turbidity (> Sheen/Free) ME(4) (908LA/S	Product S (GOIOI) 3 Preservative H CL HN03 NA. 64	1-72 Novie 1470+) Cy Ai 0xin(82 1 pH Temp. 146 147. 1 11 11	Conductivity ZY FO
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALM OC: Sample Parameters: PCB Container Size U) (W) 1 L L L L L L L L L L L L L L L L L L	(82(00B) SVO (82(00B) SVO (80,765) Container Type CLASS 4MSE - 70LU - AMBER	F ACCEPTED	Turbidity (> Sheen/Free) ME(4) (908LA/S	Product S (GOIOI) 3 Preservative H CL HN03 NA. 64	1-72 Novie 1470+) Cy Ai 0xin(82 1 pH Temp. 146 147. 1 11 11	Conductivity ZY FO
Sample Parameters: PCP Container Size UC: Sample Parameters: PCP Container Size UC: Con	(\$2(00B) SVO (\$2(00B) SVO (\$0,7657 Container Type CLASS AMSSE 1 AMS SE 1 1	F ALCASS	Turbidity (> Sheen/Free) ME(4) (908LA/S	Product S (GOIOI) 7 Preservative H CL HN03 NIA 5 03	1-72- Novis- 1470+) Cy Ai 0xin(82 1 pH Temp. 14 11 11 11 11 11	Conductivity ZY FO
Turbidity (> 100 NTUs) (40	(82(00B) SVO (82(00B) SVO (80,765) Container Type (4455) 4486 7044 AMB 92 11 11 11 11 11 11 11 11 11 1	F ALCASS	Turbidity (> Sheen/Free) ME(4) (908) A/9 Filtered N	Product S (GOIOI) 7 Preservative H CL HN03 NIA 5 4	1-72 Novis 2470+) Cy Ai 0xin/ (82 pH Temp. 1461 07.1 11 11 11 11 11 11 11 11 11 11 11 11	Conductivity ZY FO
Turbidity (> 100 NTUs) (40	(82(00B) SVO (82(00B) SVO (80,765) Container Type (4455) 4486 7044 AMB 92 11 11 11 11 11 11 11 11 11 1	F ALCASS	Turbidity (> Sheen/Free) ME(4) (908) A/9 Filtered N	Product S (GOIOI) 7 Preservative H CL HN03 NIA 5 4	1-72 Novis 2470+) Cy Ai 0xin/ (82 pH Temp. 1461 07.1 11 11 11 11 11 11 11 11 11 11 11 11	Conductivity ZY FC
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALEA	Container Type Container Type COASS ANGE POUL ANGE ANGE IN	F ACABECTED	Turbidity (> Sheen/Free) ME(AL) (GOSLA/S) Filtered NO NO NO NO NO NO NO N	Product S (GOIOS/) Preservative H CL HN03 AIA B 4	1.72 NOVIN CYAL OXIN C 82 PH Temp. 14 11 11 11 11 11 11 11	Conductivity ZY FC
Turbidity (> 100 NTUs) (#0.1 Sheen/Free Product ALEA	Container Type Container Type COASS ANGE POUL ANGE ANGE IN	F ACABECTED	Turbidity (> Sheen/Free) ME(AL) (GOSLA/S) Filtered NO NO NO NO NO NO NO N	Product S (GOIOS/) Preservative H CL HN03 AIA B 4	1.72 NOVIN CYAL OXIN C 82 PH Temp. 14 11 11 11 11 11 11 11	Conductivity ZY+CO '' '' '' '' '' '' '' '' '' '' '' '' ''
Sample Parameters: PCP. Container Size UD W. Z50 SOOM. Z50 M. Monitaring Well Integrity Check Well identification number cless Well covers and locks in good is the well stand pipa vertically is the concrete pad and surfal. Are soils surrounding the well is the PVC well caparing in good is the rest standing water in the	Container Type Contai	# Collected # Collected 2 1 2 1 1 1 2 1 1 1 2 1 1	Turbidity (> Sheen/Free) ME(AL (JOBLA(S	Product S (GOIOI) FIS(A) Preservative HCL HN03 Air. 6.4 Na. 5.03 Aug. 7	1.72 NONIS 1470+) Cy Al 0xin/ (82 1470+) Cy Al 141 141 141 1	Conductivity ZYFO '' '' '' '' '' '' '' '' ''
Sample Parameters: PCC Container Size Contai	Container Type Container Type Container Type Container Type Container Type Container Type Ange	# Collected # Collected 2 1 2 1 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 2	Turbidity (> Sheen/Free) ME(AL (908LA(9 Filtered AL AL AL AL AL AL AL	Product S (GOIOI) FIS(A) Preservative HCL HN03, NIA D 4 NIA S,03	1.72 New 15 New 1	Conductivity ZY FO '' '' '' '' '' '' '' '' ''
Sample Parameters: PCP. Container Size UD W. Z50 SOOM. Z50 M. Monitaring Well Integrity Check Well identification number cless Well covers and locks in good is the well stand pipa vertically is the concrete pad and surfal. Are soils surrounding the well is the PVC well caparing in good is the rest standing water in the	Container Type Container Type Container Type Container Type Container Type Container Type Ange	# Collected # Collected 2 1 2 1 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 1 4 2 1 2 2	Turbidity (> Sheen/Free) ME(AL (908LA(9 Filtered AL AL AL AL AL AL AL	Product S (GOIOI) FIS(A) Preservative HCL HN03, NIA D 4 NIA S,03	1.72 New 15 New 1	Conductivity ZY FO '' '' '' '' '' '' '' '' ''
Sample Parameters: PCP. Container Size United Size Container Size United Size Well identification number clear Well covers and locks in geod Is the well stand pipa vertically Is the concrete pad and surfal Are soils surrounding the well Is the PVC well casing in good Is there standing water in the Is the stand pipe vented at the Does the total depth of the well NOTES: Top of casing electricals	Container Type Contai	# Collected # Collected 2 2 4 2 4 2 4 2 4 2 4 2 4 7 7 8 8 9 1 1 1 1 1 1 1 1 1 1 1 1	Turbidity (> Sheen/Free) ME(AL (908LA(9 NI NI NI NI NI NI NI NI	Product S (GOIOI) FIS(A) Preservative HCL HN03, NIA D 4 NIA S,03	1.72 New 15 New 1	Conductivity ZY FO '' '' '' '' '' '' '' '' ''
Turbidity (> 100 NTUs) (00 NTUs) Sheen/Free Product ALEA Container Size Cont	Container Type Container Type Consider Type Consider Type Consider Type Consider Type Condition AMS F2 I I I I I I I I I I I I I I I I I	# Collected # Collected 2 1 2 1 2 1 2 1 4 4 4 4 4 4 4 4 4 4 4 4	Turbidity (> Sheen/Free) ME(AL (908LA(9 Filtered AL AL AL AL AL AL AL	Product S (GOIOI) FIS(A) Preservative HCL HN03, NIA D 4 NIA S,03	1.72 New 15 New 1	Conductivity ZY FO '' '' '' '' '' '' '' '' ''

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	STRUCK CORE CARCA	EERS INC			Ground Water	Sampling Log			
	D'BRIEN & GERE ENGIN	188			18/-	sther	Clavel	- 55	
	Data: /6//3	199				ii Number:	/••/	E # -	V2 0/
	**** * I * C * /* /	77		17.01		iect Number:	23	541	
1	Site Location	7-63 0/	7.			cuation Mathod:	De	-13tolle ,	IV a A
	Personnel:	#5X/1	75/			PID=			7
		•				LY D=	V.V ppa	7	1
	Depth of Well * Depth to Water * Length of Water Column Volume of Water in Well 3X Volume of Water in W	35.06 (11.15 t 23.9 t 190 (t. ft. gal.(s)		27 Diameter W 4" Diameter W 6" Diameter V noved before t	Vell = 0.163 X LW Vell = 0.653 X LW Vell = 1.469 X LW sampling Yes	/C	gal.(s)	
, 1	•		1 /					(Other	, Specify)
<i>'</i>	*Measurements taken fro	en I	Top of We	all Casing	To	p of Protective Ca	asing		
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	Color Odor Turning (> 100 NTUS)	PARK S	V 188		Color Odor Turbidity (>	100 NTU's)	- Cle	es 7 ×100	
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Annabagorium debegarrandis, manumus j. ce. dell'annabagorium de la companya de la companya de la companya de l	Color Odor Turbidity (> 100 NTUs) Sheen/Free Product Sample Parameters:	VOC (42)	160B), SV	134 (2081	Color Oder Turbidity (> Sheer/Free () , Mer	100 NTU's) Product 4=/5 (60 1 45 (815)	Cle	tes Tx100 Arn yenida oxial	(900018) 8390), MESILT
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	KO, 1340.	1	CLORLIO AASIGI	Sampling Log			
O'BRIEN & GERE ENGINEE	199			ather:	Sunn	y 90°	
Site Name:	- Kolutia a			ill Number:	200411	7 250	<u>* </u>
Site Location State	EE-017			ject Number:	1754	>	
Personnel:	boula c	<i></i>	Ev:	icuation Method:_		125 - 5 F	
		•			٦ (c	D -0.00/	aon-
Depth of Well *	25.2°	Water Volu	rne /ft. for:		<u> </u>		
Depth to Water *	17.55 ft.		Diameter V	Vell = 0.163 X LW	C		1
Length of Water Column 2	71 787 11	1	4" Diameter V	Vell = 0.653 X LW	C		
Volume of Water in Well	7.57 gal.(s))	6" Diameter V	Vell = 1,469 X LW	G	100	
3X Volume of Water in Well	/A_6/_ gal.(s)	1			-82-4 I	-14.5	,
2X Actinitie of Assets to Aset	Pageter Barrios	Volume ren	noved before s	samolina	To day	gal.(s)	
		Did well go		Yes		No V	1
		Die con Sa	,·		`		
*Measurements taken from	Top of We	ell Casing	то	p of Protective Ca	sing	(Other, Spec	ify)
Measurements revenuen	. 7			•			
Water parameters:				4			-
	,	-	. ps				
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[WD]	_	7.0 Standa				tandard	
1000	7(0)	10.0 Stand	lard <u>—</u>			S Standard	34
145+ 254	initial	initial		اسطياسو	initial		3/0-
-3/14 3, 74 (gal.	68.5	after 3, 5	(gal.)	6.52	altor	5(gal.)	<u> </u>
171100 after 7.05 (gal.		aftar 7,0%	(gal.)	7, 26	after 7.5		110
after /0.6/ (gal.		after 10, £1	(gal.)	6.96	after //-C		15.70
28.44 after /4. (gal.		alter 1415	(gal.)	6,75	after 1+7.	<(gal.)	1800
office (real	· · · · · · · · · · · · · · · · · · ·	after	(gai.)		after	(gal.)	
Water Sample: 22, 6410	4:15 PM		ž	·			
Time Collected:	17,1510						
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Physical Appearance at Star			Physical App	earance at Sampl	ina		
(I-UAZICS) Voltagratics at are						,	
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D-1	1.1 s. l. 1 DYA		Color		ζ /·	*** 000	カップスセノイン
Color	Light brn	,	Color Odor		100	est- ben	Dayser
Odor	770	**************	Odor	100 NTU's)	<u> </u>	e +100	Dayswin !
Odar Turbidity (> 100 NTUs)	145 X1000		Odor Turbidity (> 1		No. 22	8 ±100	Parteirs
Odor Turbidity (> 100 NTUs) Sheen/Free Product	145 ×1000		Odar Turbidity (> 1 Sheen/Free I	Product	NO 23	8 ±100	,
Odor Turbidity (> 100 NTUs) Sheen/Free Product	145 ×1000	00 (4 7 700)	Odar Turbidity (> 1 Sheen/Free I	Product	NO 23	8 ±100	1
Odor Turbidity (> 100 NTUs) Sheen/Free Product	145 X1000 NO PC (8260B), SV	oc (8 2 7°c)	Odor Turbidity (> 1 Sheen/Free	Product 15 (GG10B	1,04	8 +100 20 10180 5	0/18)
Odor Turbidity (> 100 NTUs) Sheen/Free Product	145 ×1000	0C (827°C) + (408/A)	Odor Turbidity (> 1 Sheen/Free	Product	1,04	8 ±100	0/18)
Odor Turbidity (> 100 NTUs) Sheen/Free Product Sample Parameters:	145 ×1000 NO PC (826 OB), SV PCB'S ((40), P13	0C (8 2 7°C) + (908/A) # Collected	Odor Turbidity (> 1 Sheen/Free	Product 15 (66101) (81514)	1, C4.	8 +100 20 10180 (50 (8 290) M	0/8/S) Bri. (7470)
Odor Turbidity (> 100 NTUs) Sheen/Free Product Sample Parameters: Container Size	(45 \$1000 (40 \$1000) (40 \$1000), 500 (40), 600 (40), 600	f (gog/A)	Odor Turbidity (> 1 Sheen/Free (, /h, fa , H, , b	Product /5 ((0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1, C4.	8 +100 x0 1 n1 da (5 o (\$ 29 o) M	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product Sample Parameters: Container Size #####	145 X1000 NO (G260B), 5V (G560), P13 Container Type	# Collected 3	Odor Turbidity (> 1 Sheen/Free () Marka Hank	Product /s (Colob (815/4) Preservative	/ / C 4 . D . V . V . V . V . V . V . V . V . V	8 +100 x0 1 n1 da (5 o (\$ 29 o) M	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product Sample Parameters: Container Size	(45 ×1000 (40 ×1000 (40 ×1000) , 5 V × × × × × × × × × × × × × × × × × ×	# Collected 3	Odor Turbidity (> 1 Sheen/Free () , /h / f - 7 , H - 1 b	Product /5 (C 0 1 0 B (8 1 5 1 A) Preservative 4 c /	/ / C 4 . D . V . V . V . V . V . V . V . V . V	8 +100 x0 1 n1 da (5 o (\$ 29 o) M	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Container Size How/	145 X1000 NO (G260B), 5V (G560), P13 Container Type	# Collected 3	Odor Turbidity (> 1 Sheen/Free () And Fall Filtered ()	Product /s (CG108 (815)4) Preservative 40/ 40/	/ / C / . // / C / . // / / / / / / / / / / / / / / / /	8 +100 x0 1 n1 da (5 o (\$ 29 o) M	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sample Parameters: Container Size How / IL Form/	145 X1000 NO (45 X1000 NO (62608), 5V (660), P.3 (container Type (455) Arbor Glossi 119	# Collected # Collected 3	Odor Turbidity (> 1 Sheen/Free () And Far Filtered () W	Product Is (G0108 (81514) Preservative 401 Hovey	/ / C / . // / C / . // / / / / / / / / / / / / / / / /	8 +100 x0 1 n1 da (5 o (\$ 29 o) M	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Container Size H@ w/ / / / / / / / / / / / / / / / / / /	(45 × 1000 NO NO NO NO NO NO NO NO NO NO	# Collected # Collected	Odor Turbidity (> 1 Sheen/Free Mark = 7 Harb Filtered	Product /s (CG108 (815)4) Preservative 40/ 40/	/ / C / . // / C / . // / / / / / / / / / / / / / / / /	8 +100 x0 1 n1 da (5 o (\$ 29 o) M	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Contagner Size H@/	145 X1000 NO (45 X1000 NO (62608), 5V (660), P.3 (container Type (455) Arbor Glossi 119	# Collected 3 7 7 1	Odor Turbidity (> 1 Sheen/Free () And Far Filtered () W	Product Is (GOIOB (BISIA), Preservative 40/		8 +100 ~0 (\$ 29.) M ip. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Contagner Size	145 X1000 NO NO C(3260B), 5V C(3260B), P.3 Container Type Container Type Actor Gless 11 Professless	# Collected # Collected 	Odor Turbidity (> 1 Sheen/Free Market Harb Filtered	Product Is (GOIOB (BISIA), Preservative 40/	NO 22	8 +100 ~0 (\$ 29.) M ip. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Contagner Size H@/	(45 \$1000 AVD FC (8260B), SV FCB'S (460), Pro Container Type Class Actor Glass Prophysical Street Actor Glass	# Collected # Coll	Odor Turbidity (> 1 Sheen/Free , My Fa Filtered V	Product Is (G0108 (81514) Preservative 401 Hovey	NO 22	8 +100 ~0 (\$ 29.) M ip. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Contagner Size	145 X1000 NO NO C(3260B), 5V C(3260B), P.3 Container Type Container Type Actor Gless 11 Professless	# Collected # Collected 	Odor Turbidity (> 1 Sheen/Free , My Fa Filtered V	Product Is (GOIOB (BISIA), Preservative 40/	NO 22	8 +100 ~0 (\$ 29.) M ip. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Contagner Size	(45 \$1000 AVD FC (8260B), SV FCB'S (460), Pro Container Type Class Actor Glass Prophysical Street Actor Glass	# Collected # Collected 	Odor Turbidity (> 1 Sheen/Free , My Fa Filtered V	Product Is (GOIOB (BISIA), Preservative 40/	NO 22	8 +100 ~0 (\$ 29.) M ip. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sampla Parameters: Contarner Siza How/ / L Eove/ 250 -/ 1L 1/4 1/4	145 X1000 AVE C(8260B), SV CONTAINER Type Glass Ander Glass 11 11 Ander Glass	# Collected # Collected 	Odor Turbidity (> 1 Sheen/Free , My Fa Filtered V	Product Is (GOIOB (BISIA), Preservative 40/	NO 22	8 +100 ~0 (\$ 29.) M ip. Condu	0/8/5) Bri. (7410)
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Odor Turbidity (> 100 NTUs) Sheen/Free Product V Sample Parameters: Contagrer Size H@ _ / _ / _ / _ / _ / _ / _ / _ / _ / _	145 X1000 NO NO C(\$260\$), 50 Container Type Container Type Actor Gleri 11 Portogles Porto	# Collected	Odor Turbidity (> 1 Sheen/Free () Market Filtered () N N N N N N N N N N N N N	Product Is (G0108) (81514) Preservative 401 401 402 403 403 403		8 +100 XO (8 29-) M ip. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product // Sampla Parameters: Container Siza	(45 \$1000 AVO AVO AVO AVO AVO C (9 26 0 R) 5 V C (9 26 0 R) 6 V C (9 26 0 R) 7	# Collected # Collected 7 1 1 2 4 2	Odar Turbidity (> 1 Sheen/Free (Product Is (GOIOB (BISIA), Preservative 40/ 40/ 40/ 40/ 40/ 40/ 40/ 40		8 +100 XO (8 29-) M 10. Condu	0/8/5) Bri. (7410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product // Sample Parameters: Container Size	(45 \$1000 AVE (62608), 5V CONTAINER Type Container Type Container Type Container Type A Container Type If	# Collected # Collected 7 1 2 4 2	Odor Turbidity (> 1 Sheen/Free (Product Is (GOIOB (BISIA), Preservative 40/ 40/ 40/ 40/ 40/ 40/ 40/ 40		8 +100 XO (10) de (50 (8 29-) M 10. Condui (9) 1100	eri. (1410)
Odor Turbidity (> 100 NTUs) Sheen/Free Product V4 Sampla Parameters: Container Siza 40 m/ 1/4 500 m/ 2 c0 m/ 1/4 1/4 1/4 1/4 Well identification number of Well covers and locks in go	(45 × 1000 (45 × 1000 (46 × 1000) (6 2 6 0 8) , 5 V (6 2 6 0 8) , 8 V (6 2 6 0 8) , 8 V (7 100) , 8 (100) (8 2 6 100) , 8 (100) (9 2 6 100) , 8 (100) (10 2 100) , 8 (1	# Collected # Collected	Odar Turbidity (> 1 Sheen/Free () Auch () Filtered () V V V V V V V V V V V V V	Product /s (CG10B) (B151A) Preservative 40/ 40/ 40/ 40/ 40/ 40/ 40/ 40	No 22	8 +100 XO (10) de (50 (8 29-) M 10. Condui (9) 1100	erc. (1410)
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,	O'BRIEN & GERE ENGINEERS, INC.	Ground Water Sampling Log
	rate: 10/13/99 Site Name: Site Lucation Surget IL Personnel: 10/4 THOMPSON /A1 CONIC	Weather: Clan Whiley Well Number: FE-05 Project Number: 23546 Evacuation Method: Panish Int. Purp
	Depth of Well * 27.21 ft. W Depth to Water * 4.71 ft. Length of Water Column B.O ft. Volume of Water in Well 1.304 gal.(s) 3X Volume of Water in Well 2.51 gal.(6)	ater Volume /ft. for: // Diameter Well = 0.163 X LWC // Diameter Well = 0.653 X LWC // Diameter Well = 1.469 X LWC
administration materials of Asset and Asset an	7.	Top of Protective Casing (Other, Specify) pH Reading Conductivity Reading O Standard O Standard 84 S Standard
A. T.	.	· · · · · · · · · · · · · · · · · · ·
	Water Sample: Time Collected: 13.00 [Physical Appearance at Start] Color Odor Turbidity (> 100 NTUs) 62	Physical Appearance at Sampling Color Odor Turbidity (> 100 NTU's)
	VOCs (67603), SUCCS (67	Sheen/Free Product 270C) METALS (GOLUS) 7478A) CVANIOF (GOLOS) S (SOSIA/ SISIA) DIOXINI 5:290) ected Filtered Preservative pH Temp. Conductivity ND (DA) 6.96163.7 1.560
	1700 mi Planti 500 mi 750 mi	
	Monitoring Well Integrity Checklist: MS/MSD Coll	ected.
	Well identification number clearly marked? Well covers and locks in good condition and secure? Is the well stand pips vertically aligned and secure? Is the concrete pad and surface seal in good condition? Are soils surrounding the well pad eroded? Is the PVC well casing in good condition? Is there standing water in the annular space between the well state the stand pipe vented at the base to provide drainage? Does the total depth of the wall sounded correspond with original	Yes
	NOTES: Top of casing elevation: Depth to Ground Water: Ground Water Elevation:	97A-11

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	Water avel measurements	
	Date/Time Detath to Water granger	
E_	P3-C-5 3/2/99/15/7 17.25 6.0/N	
1	13-C-M 13-C-D 17.42	
	13-6-0	
	1P3-B-5 3/260/1535 15.91 00/N	
1	1P3-13-11 15.31/6.64	10.00
	13-15-D	
	123-A-5 3/2/80 1545 Dry 0.0N	
\overline{w}	13-A-12 1899 0.0/N	
	13-A-D 19.16 0.6/N	
	PZA-5 3-260/1603 18.72 0:0/N	
	12-A-M 18.48 2022-A-D 15.50	
	18.00	
Value of the same	EEG-104 3/2-00/16/2 15.82 0.0/N	
		Table Services
***************************************	P2-B.5 3/2/00/1620 dry 0:0/N	
	Pa-B-M 13.97 Pa-B-D 14.09	
	17.07 Y	
***************************************		and the second s
-		
		10 m

158		(/	els Water buel	Meismenent	1 cx
	103	Mar 00		a Deeth Street	<u>i</u>
<u> </u>	GW elex	Monitorma	- WED	+ DE-H. Rewellherd	•5
	-38°F_1	ight steet	-/1721x	. L'	Mel Cons
	ID	Time	Dipty to wa	to fronty PD/4-6	i
	P2-C-5	1000	12.68	0.7/Normal	- 基 - 4
	PZ-C-M		14.96	0-7/Nom	3
Valley 5	PZ < D		15.31	0.7/ Norm	<u> </u>
F : /	,		• •		* C/U
	EEG- 108	1010	12.78	0.7/ Norm	
					į.
Casself Freld	EE -20	1020	17.85	016 / Norm	1 6
,			. ·	,	
	EE - 04	Roger's 1	Cartage - M	7/011 5	1 6
				*	
h.	EE-03	1030	17.33	7:9 / Norm	(
	, ·	بحرر		#17 / JUONA	<u> </u>
	EE-OI	1037	15.06	then it is a second	
Erreiko eur		10,3 5	- 17:00	48-4 Norm	
	101 4		A) 2/2	47/44	<u>=</u>
Cuo	P1-A- 5	1050	2). 83	1.7 / North	<u> </u>
	P1-4 - M	4 1	25, 93 25 or	18.6 / Norm	1
\$	PIA · D	у у у	25, 85	2-6 (Norm	
il is	701:00 -			The state of the s	
CAme Table	PJ-B - S	1115	<u>dry</u>	0,0 / Naran	
	P1-13 - M		22.74	DIO/NOVE	1 —
	P1-B-D	· · · · · · · · · · · · · · · · · · ·	22.67	018 / Nam	
	· 10				
PLU AND	P1-c-5	1130		0.3 /Nax	
	PI, C-M		22.89	O.S Norm	
Park Sec	P1 - C - D	······································	22_92	0.3 /Norm &	
- (4.5 A.E.)	-FE-14	1140	A X	05 / No.	
	K - Prob	e would no.	+ fit who well	due to well damage / bending	i i
Cerro	EEG-112	1145	14.87	0.7 /Norm	

	16	Existing Welle of	2 <u>Å</u> 1	CHARTTER LIA	נ <i>פ</i> ו קייד	RI MEASURIE
		JAWGE TOUR		- CHAMBION WEI		C. PICO-MISSISSISSISSISSISSISSISSISSISSISSISSISS
	0738	Tim T. gove or	tet m	celia with	_ NW_	and
		K. PERRY.	√ ∪	0		
		CMW On-pite	at Avis	I chester &	wells	-
		Piezonerex/Less	Type	(FRON TOP GEONALD) METH TO WATER MUDTHARRY /6. X	P20	257021
	080	P3-A-5	STICK	AR O PDS	0.0	Produce hit rend
		P3-A-M		ZY. O	0.0	
- 1 / E		P3-A-D	<u> </u>	18.1	0.0	
		1				
		103-10-5	STICK	1527	0.0	
		P3-B-M	1 1	15.4	0.0	
24		C3-B-D	<u> </u>	15.75	0,0	
		03-C-2	STICK	15.3	0.0	
		PS-C-N		16.5	J. D .	CAP WAS WAREN'S
		P3-C-D	<u> </u>	16.G5	0.0	
		ST-N-S	FLUSH	9.1	0.0	look broke off
		ST-N-N		9.5	0.0	loca did at forti
ang sa Turkan sa sa		ST-N-D	<u> </u>	8.5 Tapor	0.0	
E 10 C 1		•				
		FQ-15-5	STICK	DRY WITHOUR 12.7	0.0	
		P2-10-1		12.8	0.0	
		P2-B-D		/3.0	00	
					·	
		EEG-104	STICK	14.5	0,0	
		FF-05	STICK	17.0	0.0	

		1PQ-A-5	STICK	17.4	<i>0</i> .0	cap lodged is co
English Berger		102-A-W		17.0	0.0	<i>U</i>
		102-A-D				

A W Returns from	-lu-&	VESON THE DECORUST				
PICZONCTER/LELL	778°	DEPTH TO WATER				
STEIS	PLUSH	74.75T	0.0	No.	LOCKS	
	1	14.5	0.0		*	
ST-1-M		14.351	0.0	1 1		
ST-1-0		d		ļ		
FE-X	STICK	16.99	00	<u> </u>		
F.F. 80	7,					Supple subject
		9.35>12.7	0.0	No	vociks	
ST-H-S		8.45	0.0	<u> </u>		
T-H-M		9.35 11	0.0		V = I	
ST-1+D		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	美数心	<u> </u>	. 55	
	STICK		0.0	·		
<u> </u>		13.3	\$ 0.0°	·}:	:	
P2-c-M	11	14.25	0.0	7 -		
pa-C-10	_ <u> ¥</u> _	1			ši .	
		101	0.7	7 .		
FEG-108.	5716			2	W.	
		x -027/63	7.0	0世		
ON EE-03	site		**		<u> </u>	
		V 1565	3,00	<u> </u>		
BR H	STIC			1.		
		CK 13.85	0.7	,]	71 pen in pipe	
FE-OI	151	CK 13.85				
		14.1-	0	5 T	* -:	
EE6-110						
1		14.75	To	O	Sec. 252. 12	E PER SECURITION OF THE SECURI
EEG-109		++ /7./3				6_ 34 5 5 4 5
			, T	O	1	
EEG-106		/3.0				in a contract of
	F	Brack 77	- ₱:Nd €	₹ _{OF}	LLART	(200) Comment
EEC102		1 1000		STATE SGRAC	Saddraw !	
14. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15		1 19		2.15	7. JAIN in Pipe	
BR-G	<u>_</u>	12/0-24				
	<u> </u>	THE SHEET STATE OF THE SHEET STA		3.30 are	VO23 L PLAC	
FEG-107	<u>:: </u>	V 4 7500		C Die		

166	Esting Willand	pieżome	tes water leve	messin	imust	Existing Wi
***************************************	Piczoneserwich	שמעד	DENTH TOWNER	PLO	Notes	PIEZOMETE
	EÉG-107	STICK		0.7		,P3-A
	EE-11		16.0	Ø-7	15.3 in PIPE.	
	EE -05 SE	e pag	0 164 /	1/		P3-B-1
	ST-6-S	FLUSH	12.4	0.7		
	ST-G-\$1		13.0	0.7		
	ST-G-D	<u> </u>	13.0 Man	6.7	mud, gravelo 4)	P3-C~S 0
<u>;30</u>	CNU Relurnal.	5 Site		long	6-26-20	/S-C-3 1
KOOD	PI-A-S	FULLS13	19.9	1	CMUDIOSEN	
	P1-A-M		23.85		5.5 in pipe	Pã-8-M 0
	PI-A-D	V _	23.85	<u>0.7</u>		
	P1-B-S	STICK	20.	0.7	3.7 i ppa	
	M-A-19		21.25	0.7	23 in pipe	
	P1-B-D	<u> </u>	<u> </u>	0.0		
					4A'-2 GW	R-A-M
	P1-6-5	उप्टार	DRY @ A.C.	0.0	wing-No H'D	
	P1-C-M		21.05	0.0	NO CAP	
<u> </u>	1-C-D	4	21.75	0.0		
19.0	BR - I	STICK"	37.9	2.3	KERRANDA PUNT DI 1811 in pipe	p2-c-M
12 V			:	<i>a-11</i>	ninpye	:
4 44	EE-14	STICK	16.7	<i>2</i> 3	POCTESA PUZZAS	
			1.			57-6
	EEG-112	STICK-	13.2	0.7		
	PID CALIBRAT				_	
	CALIBRATED ON: 6	MILZ 1			-	
	STANDARDS USED:			574 -8	167	P/-c-
	STANDAROS TRACE	ABLETOS	The state of the s			15.23
	ENVIRONMENTAL C	Minten in	ARE 7			

		. 21.				3)



GSI Job No. G-2876 Issued: January 21, 2005

EVALUATION OF SEPTEMBER 1999 DNAPL THICKNESS DATA ON TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

ATTACHMENT 4 - SELECTED BORING LOGS

Boring logs for wells ST-G, ST-H, ST-I, ST-L, and ST-N (Source: pages 187A-1 to 187A-20, Volume 3 of Field Sampling Report, O'Brien & Gere, 2000)

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING					
			ENGINE	ERS, INC.				ST-G-D				
Client: S	olutia	Inc.				Sampler: 2" Diameter	Page 1 of 4					
	-		•			Split Spoon	Location:	West of Site	e G			
Proj. Loc	:: Sau	get Area	.1			Hammer: 140 lb	na nata	24/20/00				
File No.:	10046	NASCOL				Fall: 30"	Start Date: 01/06/00 End Date: 01/07/00					
			riss Drillin	10		rail: 30	Screen	= \\	Grout	\neg		
Foreman			iss with.	9			Riser	H	Sand Pa	ick		
			m E. Wrig	iht, RG			1	Bentonit				
		1					Stratum	T	Field			
Depth					,		Change		Testin)g		
Below		Depth	Blows	Penetri		Sample Description	General	Equip.	HNU	ı		
Grade	No.	(feet)	/6"	Recovery	Value		Descript	installed	(ppm)			
0	1	0-2	1	24/15	3	Dusky brown 5YR2/2, dry, sandy, silty clay soil			0.0	i		
ļ	ļ¦	 	2	 	 			1				
1	 	 	1	 								
2	2	2-4	2 2	24/15	8	O or characte annual 2º DEG			0.0			
	-	 	4	24/15	-	Same as above to approx. 3' BEG			0.0			
3		 	4	<u> </u>	 	Pale yellowish brown 10YR6/2, silly sand; dry						
		i	4	<u> </u>	1	Total Antonious measure seasons and amount and						
4	3	4-6	2	24/17	7	Pale yellowish brown 10YR6/2, silty fine sand; dry			0.0			
			3									
5			4]						
			5]						
6	4	6-8	2	24/15	5	Same as above; moist; slightly clayey in 0.5" to 1"			0.0	1		
	<u> </u>	<u> </u>	2		<u> </u>	layers (2)						
		 !	3		 	<u>,</u>						
	 	<u> </u>	5		 	4			_			
8	5	8-10	3	24/13	5	Same as above			0.0			
	-		3	 	+	1						
9	 		3	 	1	Wet at approx. 9.5' BEG						
10	6	10-12	2	24/16	5	Same as above; wet						
<u> </u>	 	1,7,12	2			1						
11			3			1						
			3									
12	7	12-14	2	24/17	4	Dark yellowişh brown 10YR4/2, wet, silty,			0.0	1		
	<u> </u>	ļ'	2	<u> </u>	4	line sand				1		
13	 	<u> </u>	2		4					1		
 	 		3	<u></u>	-	4				1		
14	8	14-16	1 1	24/17	3	Same as above; moderate yellowish brown			0.0			
15	 		2		 	4						
15	 	-	4	 	+	4						
16	9	16-18	3	24/16	10	Pale yellowish brown, wet, silty, fine sand			0.0			
<u> </u>	 	12-,5	5	1	1	Para Junamian Marini, man, and June			"-			
17	 		5		1	1			1			
			4			1						
18	10	18-20	2	24/16	9	Same as above			0.0			
			4]			!			
19			5		<u></u>	_						
<u> </u>	<u> </u>		7	<u> </u>					1			
20	11	20-22	7	24/15	20	Same as above to approx, 21.5 ft BEG			0.0	1		
ļ	ــــ		9			4			!			
21	 	ļ	11	 	 	4			1			
<u> </u>	<u> </u>		11			Pale yellowish brown 10YR 6/2, fine sand; trace to a			1	1		
22	12	22-24	5	24/12	18	little silt; wet			0.0			
L	├		6		 	4			1			
23	 	1	12		-	2" dark brown silt and sand lens			1			
	<u> </u>		14	L		Pale yellowish brown 10YR 6/2 fine to medium sand;	Wet, time and		<u> </u>	<u> </u>		
DUTHING COME	ipsen e	10 grovies i	ig a last neig	ow surface, 0-3 fe	/El Issimu	Q WIIN SQU						

חוממיר	NR (CEDE E	NCINE	ERS, INC.		TEST BORING LOG	'\C' '\	RT OF BOI	NII G			
lient: S			VOIIVE!	_173, 1146.		Sampler: 2" Diameter	Page 2 of	Page 2 of 4				
ment. S	ulutta	IIIÇ.				Split Spoon			- 0			
roi. Loc	:: Sau	get Area	1			Hammer: 140 lb	LUCATION:	West of Sit	e 0			
.0]. 200		20, 2168	•			eminimot, INV (U	Start Date	 Start Date: 01/06/00				
ile No.:	10040	7/23548				Fall: 30"	End Date:					
		*********************	iss Drillin	a		1	Screen]=	Grout			
oreman							Riser	H	Sand Pac	k		
			n E. Wrig	ht. RG		•		₩ ₩	Bentonite			
							Stratum	10000	Field			
Depth							Change		Testing	,		
Below		Depth	Blows	Penetr/	"N"	Sample Description	General	Equip.	HNU	,		
Grade	No.	(feet)	/6"	Recovery	Value	•	Descript	Installed	(ppm)			
24	13	24-26	8	24/11	·	Pale yellowish brown 10YR 6/2, fine to medium sand	·		0.0			
			14			some black specks; a little silt; trace coarse sand	1.0.,		"."			
25			19									
			19	· · · · · · · · · · · · · · · · · · ·								
26	14	26-28	15	24/13	43	Same as above			0.0			
			19			1			""			
27			24									
			24									
28	15	28-30	9	24/10	22	Same as above			0,0			
			12									
29			10									
			14									
30	16	30-32	7	24/12	15	Same as above with a 0,5" medium/coarse sand			0.0			
			7			seam at 31 ft						
31			8									
			9									
32	17	32-34	. 10	24/11	16	Same as above, except a dark yellowish brown			0.0			
			8			10YR 4/2						
33			8									
			10	•								
34	18	34-36	9	24/12	30	Same as above to approx, 35.5 ft; then same			0.0			
	<u> </u>		15			but a finer grained sand						
35			15									
	<u></u>		15									
36	19	35-38	10	24/18	35	Fine grained, dark yellowish brown, wel, fine			0.0			
			15			slity sand to 37.7 ft; then medium grained sand						
37	ļ		20									
			27									
38	20	38-40	10	24/12	37	Fine grained grading to medium grained, dark			0.0			
	 		15			yellowish brown 10YR 4/2, wet sand						
39			20									
40		40 42	20	*****		PM (_			
40	21	40-42	10	24/18	37	Fine grained grading to very fine grained, wet,			0.0			
41	 		16	:		medium dark gray N4 sand						
-7:			21 25					1				
42	22	42-44	10	24/10	75	Madium dark aray MA fina to una fina anti-						
-7.5	44	74 74	10	24/10	25	Medium dark gray N4, fine to very fine grained, wet, sand			0,0			
43			15	····		<u>ख्या १४</u>						
			15									
44	23	44-46	7	24/11	37	Same as above						
			16	E71) [<u> </u>				0,0			
45			21									
· · · · · · · · · · · · · · · · · · ·			27									
45	24	46-48	11	24/10	33	Same as above; medium gray N4 very fine to fine			,,			
			11	KAL IA	, CO	grained, wet sand			0.0			
47			22			पुरुवाराज्यः, सद्य बदास्य						
			27									
								1	I			

הַיִּם מִּיה	N P	CEDE E	MONE	EDC INC		TEST BORING LOG	REPORT OF BORING				
			MOINE	ERS, INC.					-G-[<u> </u>	
Client: S	olutia	inc.				Sampler: 2" Diameter	Page 3 of 4				
.	#4					Split Spoon	Location: West of Site G				
roj. Loc	:: Sau	get Area	1			Hammer: 140 lb					
	1					•	Start Date:)	
File No.:		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Fall: 30"	End Date:	01/07	7/00		
			iss Drillir	ng	<u>-</u>		Screen	T≡T		\ Grout	
oreman	ı: Tim	Crank				•	Riser	П		Sand I	
DBG Ged	ologis	t: Williar	n E. Wrig	ht, RG				<u></u>		Bento	
					T		Stratum	T			
Depth							ł .			Fiel	
		Damah	Di	D 1 . 1			Change			Test	ling
Below		Depth	Blows	Penetri	"N"	Sample Description	General	Eq	juip.	HNU	1
Grade	No.		/6"	Recovery	Value		Descript	Inst	allec	d (ppm)	
48	25	48-50	12	24/12	52	Medium gray N5, wet, very fine to fine grained sand;				0.0	
			25			trace silt					
49			27								
			18			·					
50	26	50-52	11	24/8	31	Same as above				0.0	
			14							0.0	
51			17	***************************************	 					1	
		 									
6.4		E0 5 :	18	<u></u>	 						1
52	27	52-54	13	24/12	57	Same as above				0.0	
			26		ļ			ĺ			
53		l	31								1
			31								
54	28	54-56	10	24/13	48	Same as above				0.0	
			24							""	
55	l		24								
	<u> </u>		23								
56	29	56-58	11	24/10		C					
20	23	30-30		24/10	37	Same as aboye				0.0	
			16								
57		ļ	21	·····							
			22								
58	30	58-60	49	24/13	35	Same as above				0.0	
			15								
59			20								1
			24								
60	31	60-62	14	24/10	40	Same as above to 61.5 ft.; 0.25" white shell layer				0.0	1
			20		1	at 61.5 ft; medium dark gray N4 and medium				0.0	
61			20								
				·		grained size at 61.5-62 ft; trace to some coarse					1
e	22	62.64	24	****		sand to approx. 63 ft					
62	32	62-64	19	24/14	44	Medium dark gray N4, wet, fine grained sand; some				0.0	
			21			silt; dessiminated black specks					
63		ļl	23			1					
			25			· .					
64	33	64-66	7	24/12	24	Same as above				0.0	
			11							1	1
65			13	•						1	
			15			,				-	1
66	34	66-68		7414		Shadhan dark arms ble					
00	- 34	00-00	9	24/12	31	Medium dark gray N4, wet, fine to very fine grained				0.0	
			14		 	sand with black specks; trace of fine-medium					
67			17			grave!					
			20								
68	35	68-70	8	24/10	24	Same as above				0.0	
			11								
69			13								1
:: <u>-</u>			15								
70	30	70 72		***		Made and any Market					
70	36	70-72	8	24/12		Medium dark gray N4, medium and coarse sand, with				0.0	
1			14			fine sand; some gravel up to 1" in diameter;					
							- 1				
71			11			coarse toward bottom				1	

O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING					
			NGINE	ERS, INC.				ST-G-D				
Client: S	olutia	inc.				Sampler: 2" Diameter	Page 4 of	\$				
Duril						Split Spoon	Location:	West of Sit	e G			
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb						
File No.:	40040	1/22540				F. 3. 201	Start Date: 01/06/00					
			iss Drillir			Fall: 30"	End Date: 01/07/00					
Foreman			וווווע כני	'		·	Screen	부 부	Grout			
			n E. Wrig	ht. RG			Riser	□	Sand Pa			
	T 313				T		Stratum		Bentoni Field			
Depth							Change		Testir			
Below		Depth	Blows	Penetr <i>i</i>	"N"	Sample Description	General	Equip.	HNU	i ^y		
Grade	No.	(feet)	/6"	Recovery	Value		Descript	installed	(ppm)			
72	37	72-74	14	24/18	49	Medium dark gray N4, coarse sand to 73 ft; then			0.0			
	<u> </u>		14			6" of fine gravel and pieces of rock and fine						
73	ļ		35			sand with gravel; then gravel and fine sand to 74 ft]			
			36		<u> </u>							
74	38	74-76	15	24/18	66	Fine to medium gravel with fine sand			0.0			
70	 		30					1				
75			36		!	Fine gravel (3"); fine sand; coarse sand and						
76	39	76-78	26 15	2446	F.	gravel 75-76 ft; some pieces of rock in tip						
(W	1 3	. 0-70	21	24/16	51	Fine gravel to approx, 77 ft			0.0			
77			30			Medium dark gray N4, line, sand; grading						
			30			downward to very fine sand						
78	40	78-80	10	24/12	35	The state of the s						
			15									
79			20			Medium dark gray N4, fine through coarse sand				l		
	<u> </u>		20			with fine gravel						
80	41											
ļ												
81	-				 					l		
	 				 							
82	 				 	,						
83										l		
					 			_				
84							,	•		l		
85												
	ļ											
86	 				<u> </u>					ı		
	 				ļ				***************************************			
87	ļ											
D.O.		ļ					·			1		
88										1		
89	 									1		
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90	1					·				l		
	1											
91						•						
92												
93										I		
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94									1	ı		
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95							1					
	لــــا											
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O'BRIEN & GERE ENGINEERS, INC.						TEST BORING LOG	REPORT OF BORING					
O'BRIE	N & C	SERE E	NGINE	ERS, INC.				ST-H-D				
Client: S	olutia	Inc.				Sampler: 2" Diameter	Page 1 of 4					
						Split Spoon	Location:					
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb						
j	4.3					•	Start Date:	12/06/99				
File No.:						Fall: 30"	End Date: 12/08/99					
			iss Drillin	g			Screen	= 1	Grout			
Foreman							Riser		Sand Pa			
OBG Get	ologis	t: Tony F	inch		1				Bentoni			
Depth					1		Stratum		Field	1		
Below		Depth	Blows	Penetr/	"N"	Sample Description	Change General	E-vi-	Testin	19		
Grade	No.	(feet)	/6"	Recovery	Value	Campie Description	Descript	Equip.	PID (ppm)			
0	1	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1	24"/18"		Moderate yellowish brown 10YR5/4, damp,	Descript	motaneu	0.0			
			2			soft, clay; trace silt			0.0			
1			2									
			4				2					
2	2		3	24"/18"	6	Moderate yellowish brown 10YR5/4, damp,			0.0			
			3			loose, fine sand; little silt						
3			3									
			2		<u> </u>		4'					
4	3		1	24"/18"	3	Moderate yellowish brown 10YR5/4, moist,			0.0			
5	 		2			soft clay; little sllt						
-3-			1		<u> </u>							
6	4		2	24"/18"	5	Moderate yellowish brown 10YRS/4, wel,						
	 		4	24710	<u> </u>	loose, fine sand; trace silt			0.0			
7			1			335, 1173 3074, 1143 311						
			2	*								
8	5		1	24"/18"	4	Moderale yellowish brown 10YR5/4, wet,			0.0			
			2			loose, fine sand; little sitt						
9			2		<u> </u>	•						
)	 		3		<u> </u>							
10	6		2	24"/12"	4	Moderate yellowish brown 10YR5/4, wet,			0.0			
11	 		2			loose, fine sand; trace silt						
			2			*						
12	7		1	24"/18"	3	Same as above			0.0			
			1						5.0			
13			2									
			1									
14	8		2	24"/12"	7	Same as above			0.0			
	 		3	<u> </u>	 							
15	 		4									
16	9		4	*******	40	Campa and all 1-1-1-1-1						
10	<u> </u>		<u>2</u> 5	24"/12"	10	Same as above; sand size intermixed fine to medium			0.0			
17	1		5		 							
	T		5			.						
18	10		2	24"/12"	10	Same as above; 2" seam of coarse sand/fine gravel			0,0			
			4									
19			6									
	<u> </u>		7	ļ	<u> </u>	·						
20	11		1	24"/12"	6	Moderate yellowish brown 10YR5/4, wet,			0.0			
	 		3	<u> </u>	 	loose, fine sand; trace fine gravel; trace silt						
21	 		3									
22	12		3	7447444	42	Wat longs course send; tenso sile						
	 -''- -		5	24"/12"	12	Wet, loose, coarse sand; trace sit			0.0			
23	 		7		 							
			9									
1									^·i			
1												

						TEST BORING LOG	REPOR	T OF BO	RING			
			NGINE	ERS, INC.				ST-H-D				
Client: S	olutia	Inc.				Sampler: 2" Diameter	Page 2 of					
						Split Spoon	Location:	Site H				
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb						
							Start Date:					
File No.:						Fall: 30"	End Date:	1 1 1	·			
			iss Drillin	g			Screen		Grout			
Foreman						•	Riser		Sand Pa			
OBG Ge	ologis	t: Tony F	inch		1				Bentonii			
							Stratum		Field			
Depth				_			Change		Testin	ıg		
Below		Depth	Blows	Penetr/	ł.	Sample Description	General	Equip.	PID			
Grade	No.	(feet)	/6"	Recovery	Value	t — — — — — — — — — — — — — — — — — — —	Descript	installed	(ppm)			
24	13		2	247/12"	5	Moderate yellowish brown 10YR5/4, wet, loose			0.0			
	<u></u>		2		 	medium sand; trace fine gravel; grades to						
25	<u> </u>		3			medium light grey NS						
····	<u> </u>		6		 							
26	14		5	24"/18"	16	Medium Grey N5, wet, loose, fine to medium			0.0			
	 		7		 	sand; trace sitt						
27	 		9		ļ	***************************************			j			
·			12		<u> </u>							
28	15		3	24"/12"	18	Medium light grey N6, wet, loose, fine sand;			0.0			
	 		7		<u> </u>	trace silt						
29	 		11		<u> </u>							
	 		15		ļ	·]			
30	16		3	247/187	12	Medium light grey N6, wet, fine, toose sand;			0.0			
	 		4		ļ	trace silt; grades to moderate yellowish						
31	 		8		 	brown 10YR5/4						
	 		B		<u> </u>							
32	17		4	24"/24"	22	Moderate yellowish brown 10YR5/4, wet, loose			0.0			
	 	ļ	В		 	fine sand; some sill; grades to medium grey N5		1				
33	 	<u> </u>	14		 	1						
-			16	ļ	 							
34	18		4	24"/18"	12	Mediடம் grey N5, wet, loose, silty fine sand			0.0			
	-	 	5	ļ	 		1					
35		 	7									
	 	ļ	9	*								
36	19	 	1	24*/18"	10	Medium grey N5, wet, loose, medium sand; trace			0.0			
~~	 	 	5		 	sit	1.					
37	+	<u>!</u>	5	1	 							
	1	 	9	*****	 	Clay lens 1-2" @ 37.5"						
38	20	1	2	24"/12"	17	Medium grey N5, wet, fine, loose sand;			0.0			
30	+		9		 	trace silt	1					
39	 		8	 	1	-						
40	21		3	24"/12"	6	Same as above			0.0			
	1		3			Conne de docid			0.0			
41	1	 	3	 	 	1						
71	 	<u> </u>	3	 	 	-						
42	22	1	1	24"/12"	6	Same as above			0.0			
76	+ **		2	27116	1 -				","			
43	1		4	 	1	•						
	1	1	4	 	1	1						
44	23		2	24"/18"	9	Same as above; grades from fine to coarse			0.0			
	† "	T	4	1	T	sand; trace silt			""			
45	1		5		†							
	1		10		1	-						
45	24		1	24"/24"	5	Wet, poorly sorted, loose, fine to coarse sand;			0.0			
	 •••		2		┪	trace sit			0.0			
47	 		3	<u> </u>	 	Trans din						
	 	 	2		1	1						
										1		

	-					TEST BORING LOG	REPOF	RT OF BOI	RING				
O'BRIE	N & (GERE E	NGINE	ERS, INC.]		ST-H-D					
Client: S	olutia	Inc.				Sampler: 2" Diameter	Page 3 of	4		·····			
						Split Spoon	Location:						
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb							
	13						Start Date:	12/06/99					
File No.:						Fail: 30"	End Date: 12/08/99						
			iss Drillin	ıg			Screen		Grout				
Foreman							Riser		Sand Pa				
OBG Geo	ologis	t: Tony F	inch		7	***		<u> </u>	Bentoni				
Danth							Stratum		Field				
Depth		5	D 1	Pa. A t			Change		Testir	ng .			
Below	\$1	Depth	Blows	Penetr/	"N"	Sample Description	General	Equip.	PID				
Grade	No.	(feet)	/6"	Recovery	Value	**************************************	Descript	Installed	(ppm)	ļ			
48	25		6	24"/12"	6	Medium grey N5, wet, poorly sorted, loose, fine to			0.0				
49			3		ļ	coarse sand; trace of silt							
43			7				504						
50	26		4	24"/12"	15	Wel, coarse sand	50'6"						
			6			Medium grey N5, wet, loose, fine to medium sand;	50 6		0.0				
51			9			trace silt							
			7		<u> </u>								
52	27		4	24"/18"	19	Medium grey N5, wet, poorly sorted, fine sand;			0.0				
			9			trace silt							
53			10										
			10										
54	28		5	24"/12"	8	Wel, coarse , loose sand; grades to fine			0.0				
			4			sand; trace silt							
55			4										
			2		ļ								
56	29			24"/12"	1	Same as above; large piece of tree root			0.0				
57			1		<u> </u>								
)			1 ′										
58	30		1	24"/12"	2	Same as above; medium grey N5, wet,			0.0				
59			1		 	fine sand in tip							
			1		 								
60	31			24"/12"	3	Wet, loose, coarse sand; trace sill			0.0				
			1			sand panel panel online to the fift			0.0				
61			2										
			1					Į.					
62	32		2	24"/12"	10	Medium grey N5, wel, loose, fine sand;			0.0				
			6			trace siil							
63			4										
			4										
64	33		3	24"/12"	17	Same as above			0.0				
			4										
65			13		ļ								
			15	<u> </u>									
- 66	34		15	24"/18"	41	Medium grey N5, wet, medium dense, fine sand;			0.0				
67			20			little sitt							
V .			21 21		-								
68	35		3	24"/24"	7	Wet, loose, coarse sand to fine gravel;			22				
			3		<u> </u>	Trace silt			0.0				
69			4										
			3										
70	36		5	24"/18"	23	Wel, medium dense, medium to coarse sand;			0.0				
			10			trace sitt			v.u				
71			13										
			13										
								·	··				

						TEST BORING LOG	REPOR	T OF BO	RING	
			NGINE	ERS, INC.				ST-H-D		
Client: S						Sampler: 2" Diameter	Page 4 of			
_						Split Spoon	Location:	Site H		
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb				
						•	Start Date:			
File No.:						Fall: 30"	End Date:	1	·	
			iss Drillir	ıg			Screen		Grout	
Foreman							Riser		Sand Pa	
OBG Ge	<u>ologis</u>	t: Tony i	inch						Benton	
					ļ		Stratum		Field	
Depth							Change		Testi	ņg
Below		Depth		Penetr/		Sample Description	General	Equip.	PID	
Grade	No.	(feet)	/6"	Recovery	Value		Descript	installed	(ppm)	
72	37		8	24"/18"	16	Wel, loose, coarse sand; grades to medium;			0.0	
	 		8		ļ	trace silt				
73			8	<u> </u>						
74	38		12	,	 	MATAL CONTRACTOR OF THE STATE O			1	
14	30			24"/18"	4	Wet, very loose, medium to coarse sand:			0.0	
75	 					trace sill				
17	 		4 10		 					
76	39		4	24"/24"	7	Wet, loose, fine gravel; grades to medium to		1	0.0	
	 ~~		4	47 /47	 	coarse sand; trace sill			0.0	
77			3		 	manufactured statement field				
	1		3							
78	40		6	24"/18"	16	Wel, medium grey NS, loose, coarse sand/			0.0	
		l	7			fine gradel; trace silt	-		"."	
79			9							
			10			1				
80	41									
						EOB @ 80 fbg				
81		<u> </u>								
			ļ							
82		ļ								
	 		ļ		<u> </u>					
83	 		<u> </u>	<u> </u>						
	 		<u> </u>		ļ					l i
84	 									
ne	-		 	 						
85	┼	<u> </u>		<u> </u>	 					
86	 	 	 	 	 					
	†			 	1	1		1		
87	1	 	<u> </u>	 	 	+				
T	1			 	 		***************************************]	
88	1		 		†	1	-]		
					1	1	*******	1		
89										
90										
91										

92								1		
93	 				<u> </u>]	
	ļ]	
94	<u> </u>]			<u> </u>	
	 		<u> </u>							
95	 	<u> </u>								
ļ	<u></u>	<u></u>	<u></u>	<u> </u>						
Subsequen	ilozoii	sampling, t	ole was trer	nied with grout.						
l										
i										

						TEST BORING LOG	REPOR	T OF BOR	RING	
O'BBIE	NZſ	EDE E	MOINE	ERS, INC.		1201 2011110 200	11	ST-I-D	.,,,,	
Client: S			NGINE	EKS, INC.		S	<u> </u>			
Chent: 5	olutia	inc.				Sampler: 2" Diameter	Page 1 of 4			
 						Split Spoon	Location:	Site I		
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb	<u></u>			
							Start Date:			
File No.:						Fall: 30"	End Date:	1 1	T	
			iss Drillin	ıg			Screen		Grout	
Foreman							Riser		Sand Pa	9
OBG Ger	ologis	t: Tony I	inch/Bill	Wright		<u> </u>		T	Bentoni	
<u>. </u>							Stratum		Field	
Depth					 		Change		Testin	9
Below	١ ا	Depth	Blows	Penetr/	1	Sample Description	General	, ,	PID	
Grade	No.	(feet)	/6"	Recovery	Value		Descript	Installed	(ppm)	
0	1 1		1	24*/12*	6	Moderate yellowish brown 10YR5/4, damp clay,			0.0	
<u> </u>			2		 	little sitt	Ì			
	ļ		4		ļ		[l
<u> </u>			6		 		l			
2	2		<u>5</u>	24"/12"	15	Same as above			0.0	
 			7		 					
3			8			1				
 	 		9			-				
4	3		4	24"/18"	8	Pale yellowish brown 10YR6/2, dry silt, trace clay			0.0	
<u> </u>	ļ		4		<u> </u>	Pale yellowish brown 10YR6/2, damp, fine sand;				
5			4	,		trace silt				
 			5		<u> </u>		-			
- 6	4		2	24"/	8	Same as above			0.0	
<u> </u>	<u> </u>		3			-				
7	ļ		5		<u> </u>	4				
<u> </u>	<u> </u>		6							:
8	5		. 2	24"/18"	8	Same as above			0.0	
<u> </u>	 		3			-				
9	 	ļ	5	,	ļ	-				
)	 		5		ļ					
10	6	ļ	3	24"/24"	11	Same as above			0.0	
	├		4		 					
11	 		7		<u> </u>	1				
 	 		8		 					
12	7		2	24"/18"	7	Moderate yellowish brown 10YR5/4, wet, fine sand;			0.0	
	 	<u> </u>	2		 	trace silt				
13	├		5	 	 					
	┧-		5		ļ					
14	8	 	2	24"/18"	19	Same as above			0.0	
	 	l	7		 					
15	 	 	12	 	 	-				
15	 	 	13	6 4316 44	 	6				
18	9	ļ	3	24"/24"	16	Same as above			0.0	
	 		7	<u> </u>	 					
17	 	 	9	<u> </u>	 					
	1	 	11	m and an	-					
18	10	 	15	24"/12"	30	Same as above			0.0	
<u> </u>	 	 	15		 					
19	 		15	<u> </u>		•	1			
	 		7	5.482	-	S				
20	11		4	24"/	B	Same as above			0.0	
	 	 	4	<u> </u>	 					
21		 	4		-					
	<u> </u>	 	6			1_			1	
22	12		5	24"/18"	5	Same as above			0.0	
	 		4		ļ	-				
23	-		1			-				
F	<u> </u>	<u> </u>	2			<u> </u>	<u> </u>	<u> </u>	<u></u>	L
				•						
i										

						TEST BORING LOG	REPOR	T OF BOI	RING	
			NGINE	ERS, INC.				ST-I-D		
Client: S	olutia	Inc.				Sampler: 2" Diameter	Page 2 of 4			- 1
						Split Spoon	Location:	Site I		- 1
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb				- 1
							Start Date:			- 1
File No.:						Fall: 30"	End Date: 1	2/21/99	Ta :	
			iss Drillin	ıg			Screen	트 트	Grout	. 1
Foreman							Riser	ᆸ	Sand Pa	
OBG Ge	ologis	t: Tony F	inch/Bill	Wright	1				Bentoni	
n							Stratum		Field	
Depth		Donth	Blows	Domotei	"N"	Sample Description	Change General	Ei-	Testir PID	ig
Below)	Depth	/6"	Penetr/	l	Sample Description	1	Equip.	1	
Grade	No.	(feet)		Recovery	Value	Page on about title madium and	Descript	installed	(ppm) 0.0	
24	13		3 5	24"/12"	13	Same as above; little medium sand			0.0	
25			8							
	 		6							
26	14		8	24"/12"	17	 Moderate yellowish brown 10YR5/4, wet, fine sand;	1		0.0	
			9		 	trace silt				
27			8			1				
			11			1				
28	15		3	24"/12"	14	Same as above			0.0	
			7							
29			7							
	<u> </u>		7							
30	16		5	24"/6"	11	Same as above			0.0	
	<u> </u>		6		<u> </u>					
31	ļ		5	ļ						
	ļ		4		ļ	•				
32	17		3	24"/6"	10	Same as above; little medium sand; trace			0.0	
	 		5		 	fine gravel				
33	 		5	<u> </u>	 					
34	18	 	3	24"/6"	3	in the same and to a city time for const			0.0	
-34	10	<u> </u>	1	1 24 70	- 3 -	Wet, coarse sand; trace silt; little fine gravel			0.0	
35	1		2	 		†				
	1	 	2			•				
36	19	1	2	24"/12"	2	Wet, fine gravel; grades to medium stand (dark			0.0	
			1			gray N3)				
37			1							
			11							
38	20	<u> </u>	 -	24"/NR		No Recovery				
	 	 	 - -			4				
39	 	 	 -	<u> </u>		-				
	<u> </u>	 				4			_	
40	21	 		24"/12"	4	Medium olive gray 5Y5/1, wet silt; some fine sand			0.0	
7.	-	1	3		+	Olive area 5VAH and lones fire send terms -"				
41	+	 	5		+	Olive gray 5Y4/1, wet, loose, fine sand; trace sitt				
42	22	1	5	247/127	2				0.0	
 	 -	1	1 7	67/14		mostant once graf or oct, mad tale said, solite said			0.5	
43	1	1	1		1	1				
l -		1	3			-				
44	23	1	2	24"/12"	13	Moderate yellowish brown 10YR5/4, wet, fine sand;			0.0	1 1
			5			trace silt		-		
45			8							
			11							
46	24		10	24"/12"	32	Same as above			0.0	
			15			_				
47	 	 	17			4				
<u></u>			18	<u> </u>		<u> </u>	<u> </u>	<u> </u>		<u> </u>

	***************************************			,		TEST BORING LOG	REPOR	T OF BOR	RING	
l	N & G	SERE E	NGINEE	RS, INC.				ST-I-D		
Client: S				<u> </u>		Sampler: 2" Diameter	Page 3 of 4			
						Split Spoon	Location:	Site I		
Proj. Loc	c: Sauç	get Area	1			Hammer: 140 lb		48148155		
							Start Date:			
File No.:						Fall: 30"	End Date: Screen	12/21/99 = \	Grout	
			iss Drillin	g			Riser	FI F	Sand Pa	ck
Foremar			inch/Bill	Wright			171361	<u> </u>	Bentonii	
OBG GE	Ologis	t. rony r		AALICESIE	<u> </u>		Stratum	1	Field	
Depth							Change		Testin	
Below		Depth	Blows	Penetr/	"N"	Sample Description	General	Equip.	PID	
Grade	No.	(feet)	/6"	Recovery	Value		Descript	installed	(ppm)	
48	25		8	24"/18"	32	Same as above	-		0.0	
ļ			15		ļ					
49	-		17		 					
			20		<u> </u>	11		-	0.0	
50	26		18	24"/12"	35	Moderate yellowish brown 10YR5/4, fine sand, trace silt		***************************************	0.0	
51	 		21 14			nace zu(***************************************		
- 	+		12		 					
52	27		5	24"/18"	20	Same as above			0.0	
			10							
53			10		ļ					
			20		<u> </u>					
54	28		16	24"/20"	38	Olive gray 5Y4/1 fine sand; trace to some			0.0	
<u> </u>			19	 	 	silt; wet				
55	+		19		 	and the state of t				
56	29	 	12	24"/18"	32	Same as above			0.0	
30	+ **		15	*******	 ``					
67	1		17							
	İ		18			_			-	
58	30		4	24"/10"	6	Medium gray-olive gray 5Y5/1, coarse sand; trace	1		0.0	
		 	3	<u> </u>		to some silt; wet; loose	İ			1
59	 	 	3	 	 					
60	31	 	3	24"/12"	6	Same as above			0.0	
- 00	31		3		1			1		
61	-	1	3							
			A]				
62	32		3	24"/19"	13	Same as above to approx. 64.7 ft; then medium			0.0	
	_		3	-	 	gray fine, slightly sitty, wet sand		-		
63			10		<u> </u>	-				
		- 	16	 	 	Shading any bit fire and care allowed			0.0	
64	33	-	22	24"/20"	68	Medium gray N5, fine sand; some silt; wet			0.0	1
65		-	32	 	+	†			1	
03		 	22	1	†	-				
66	34	1	13	24"/14"	46	Same as above			0.0	
			20]				
67			26				1			
			20			-				
68	35	 	6	24"/16"	34	Same as above			0.0	
<u> </u>	-	 	14			-				
69			20	<u> </u>	 					
70	1 30	1	23 15	24"/18"	47	Same as above			0.0	
70	36	+	19	24/10		WHITE SHE SENITS				
71	1	1	28	1	†					
7	_	1	30			<u>.</u>			<u> </u>	<u></u>
										

						TEST BORING LOG	REPUR	RT OF BOI	KING	
			NGINE	ERS, INC.				ST-I-D		
lient: S	olutia	Inc.				Sampler: 2" Diameter	Page 4 of			
						Split Spoon	Location:	Site I		
roj. Loc	:: Sau	get Area	1		-	Hammer: 140 lb				
						•	Start Date:			
ile No.:				<u></u>		Fall: 30"	End Date:			
			iss Drillin	ıg			Screen		Grout	
oremar							Riser		Sand Pa	
BG Ge	ologis	t: Tony F	inch/Bill	Wright					Bentoni	
							Stratum		Field	
Depth							Change		Testin	<u></u> g
Below		Depth	Blows	Penetr/	"N"	Sample Description	General	Equip.	PID	
Grade	No.	(feet)	/6"	Recovery	Value		Descript	Installed	(ppm)	
72	37		11	24"/14"	41	Same as above			0.0	
			19							
73			22							
			27							
74	38		12	24"/14"	42	Same as above			0.0	
			18							
75			24							
			26							
76	39		13	24"/13"	34	Same as above			0.0	
	<u> </u>		15							
77			19						[·	
			26							
78	40		12	24"/14"	59	Same as above			0.0	
			24							
79	ļ		35							
			27	<u> </u>	<u> </u>				,	
60	41				 					
	<u> </u>			<u> </u>		EOB @ 80 fbg				
81	ļ	ļ			ļ					
	 	<u> </u>		ļ						
82	<u> </u>	<u> </u>		ļ	ļ					1
		<u> </u>	<u> </u>		ļ					
83			 							
	-		 	 	-					İ
84	-		<u> </u>		 					
85		<u> </u>								
		 		<u> </u>	-	-				
88	+	 	-	-	 	1				
₽→	-	 	 		 	1				
87		 			1	•				
88		 	-		 	-				
00	 	 	 		+	•				
89	+	-	 	 	1	•			.1	I
03	1	 	 	 	1	· ·				
90	1	 	 			†			Į	
<i>30</i>	+	 		<u> </u>	 	1				
91	1	 	<u> </u>		-	-				
	 			 	—	1				
92	1	1			1	4				1
<u> </u>	1		<u> </u>			1	1			
93	 	1	1		1	1				
- GC	 	†	 		 	1				
94	+	 			1	1	1			
34	+	 	1	1	1	1				
95	+	 	 	 		1				
- 33	+	 	 	 	 	4				
				1		T .				1

						TEST BORING LOG	REPOR	T OF BOR	RING	
O'BRIE	N & (SERE E	NGINE	ERS, INC.	:			ST-L-D		
Client: S						Sampler: 2" Diameter	Page 1 of 4			
	_					Split Spoon	Location:	S.E. of Site	L	
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb	O	04/44/00		
File No.:	10040	1/235AR				Fall: 30"	Start Date: End Date: (
			iss Drillin	a		IF 611. JQ	Screen	= \	Grout	
Foreman				· 5			Riser	H	Sand Pa	ck
OBG Geo	ologis	t: Williar	n E. Wrlg	ht, RG					Bentoni	te
							Stratum		Field	
Depth							Change		Testin	g
Below	No.	Depth	Blows /6"	Penetr/		Sample Description	General	Equip.	HNU	
Grade o	·	(feet) 0-2	1	Recovery 24/12	Value 3	Dark brown, soft clayey soil to 0.5 ft	Descript	Installed	(ppm) 0.0	
<u>-</u>	<u> </u>		1	27112		Pale yellowish brown 10YR6/2, dry, silty, very			0.0	
1			2			fine sand; loose				
			1							
2	2	2-4	1	24/18	2	Pale yellowish brown 10YR6/2, dry, loose, silly, very			0.0	
			1			fine sand; some clay				
3	3 1 1									
4						Same as above			0.0	
	4 3 4-6 4 24/13								0.0	
5										
			3							
- 6	4	6-8	2	24/16	6	Same as above			0.0	
	ļ		3							
7	├─		3							
8	5	8-10	2	24/16	4	Same as above			0.0	
			2							
9			2							
		ļ	2			Wel al approx. 9.75 ft BEG				
10	6_	10-12	2	24/18	5					
11			3							
<u> </u>	 	<u> </u>	5							
12	7	12-14	4	24/15	12	Moderate yellowish brown 10YR5/4, silty, fine to very	fine sand		0.0	
			7			Same wet, moderate yellowish brown 10YR5/4, silly,				
13			5			fine to very fine sand				
 	-		5	0.4/4.1	45	Colonia de la co				
14	8	14-16	7	24/14	16	Pale yellowish brown 10YR6/2, fine, wet sand; trace to some silt			0.0	
15	 		9			and and and				
			11							
16	9	16-18	3	24/18	14	Same as above			0.0	
ļ	 		6							
17	 	 	8		 					
18	10	18-20	14 6	24/10	18	Same as above			0,0	
'°	10	112-20	8	Z411V	10	Commo de Braia			V.V	
19			10						A-1	
			14							
20	11	20-22	8	24/13	29	Moderate yellowish brown 10YR5/4 very fine gravel,			0.0	
I	 		12		<u> </u>	sand; trace to some silt	Ē			
21	 		17		 				i	
22	12	22-24	18	24/24	21	Same as above; with some coarse sand			0.0	
	- '-		10	47/44		weens as sector suit seins senso sein			0.0	
23			11							
7			12						<u></u>	<u> </u>
Boring colla	ipsed ar	nd grouted t	o 3 feet belo	w surface, 0-3 fe	et restore	d with surface soils.	•			
1										

		*****				TEST BORING LOG	REPOR	T OF BOI	RING	
O'BRIE	N & G	ERE E	NGINE	RS, INC.		·		ST-L-D		
Client: So	olutia	Inc.				Sampler: 2" Diameter	Page 2 of 4			
						Split Spoon	Location:	S.E. of Site	L	
Proj. Loc	: Saug	jet Area	1			Hammer: 140 lb				
						•	Start Date:			
File No.:						Fall: 30"	End Date:	1 1 1	Γ	
			ss Drillin	g			Screen	 = 	Grout	
Foreman							Riser		Sand Pac	
OBG Geo	ologis	t: Willian	n E. Wrig	ht, RG		<u> </u>		1	Bentonite	2
4							Stratum		Field	
Depth							Change		Testing	3
Below		Depth	Blows	Penetri	"N"	Sample Description	General	Equip.	HNU	
Grade	No.	(feet)	/6"	Recovery	Value		Descript	Installed	(ppm)	
24	13	24-25	9	24/18	32	Moderate yellowish brown 10YR5/4, fine to medium	•		0.0	
			15		<u> </u>	grained sand, grading downward to fine sand; wet				
25			17							
			22		<u> </u>					
26	14	26-28	5	24/18	12	Moderate yellowish brown 10YR5/4, fine grained san	d '		0.0	
			7		ļ	with some coarse sand; wet				
27			5			***************************************				
			9			**************************************				
28	15	28-30	3	24/12	9	Same as above; darker (dusky yellowish brown 10YF	(2/2)		0.0	
			. 3			in tip				
29			6]				
			8							
30	16	30-32	9	24/18	28	Pale yellowish brown 10YR6/2, wet, fine grained san	d		0.0	
			15			with some medium-coarse sand	Ì			
31			13			0.5" fine gravel seam at approx. 31 ft				
	T		12							
32	17	32-34	9	24/14	19	Same as above to 33 ft			0.0	
			7							
33			12							
			16							
34	18	34-36	13	24/16	36	Light olive gray 5Y5/2, wet, fine grained sand; trace			0.0	
			17		1	to some medium to coarse sand				
35			19		<u>l</u>					
		<u> </u>	25	1		_				
36	19	36-38	11	24/12	46	Olive gray 5Y4/1, wet, fine grained sand			0.0	
	<u> </u>		21	<u> </u>						
.37			25	<u> </u>	<u> </u>	Possible fine gravel seam (1") at 37 ft				
			22	1						
38	20	38-40	6	24/14	22	Same as above			0.0	
		ļ	11			_				
39	 	 	11	<u> </u>		_				
			12	ļ		4				
40	21	40-42	10	24/12	23	Medium gray N6, wet, fine grained sand; trace silt		1	0.0	
	1	4	11	<u> </u>		-				
41	_	ļ	12		<u> </u>	4	1			
		ļ	10	ļ		4				
42	22	42-44	В	24/12	14	Medium dark gray N4, medium to coarse sand;			0.0	
			7	<u> </u>	<u> </u>	trace to some fine gravel; some fine sand				
43		_	7		<u> </u>	4				
		1	7	<u> </u>		4				
44	23	44-46	5	24/12	18	Same as above			0.0	
	1		9	<u> </u>		_				
45			9			_				
			8		<u> </u>	_				
46	24	46-48	4	24/12	15	Medium dark gray N4 fine sand; trace to some			0.0	
			7	ļ		coarse sand and fine gravel				
47			8			_				
						-			. 1	

						TEST BORING LOG	REPOR	T OF BOR	RING	
O'BRIEN	1 & G	ERE E	NGINEE	RS, INC.				ST-L-D		
Client: Sc	***************************************					Sampler: 2" Dlameter	Page 3 of 4		-	
			÷			Split Spoon Hammer: 140 lb	Location:	S.E. of Site	L	
Proj. Loc:	Saug	et Area	1			Hammer: 140 ID	Start Date:	01/11/00		
File No.: 1	: 10040	123548				Fall: 30"	End Date: (
Boring Co			ss Drillin	g			Screen		Grout	
Foreman:				_			Riser		Sand Pa	
OBG Geo	logisi	: Willian	n E. Wrig	ht, RG			_	I III	Bentoni	
							Stratum		Field Testir	
Depth				D	"N"	Carrala Dannintian	Change General	Equip.	HNU	g
Below	No.	Depth	Blows /6"	Penetr/	Value	Sample Description	Descript	Installed	(ppm)	
Grade 48	No. 25	(feet) 48-50	18	Recovery 24/10	51	Medium dark gray N4, wel, fine grained sand;	Descript	niotunes	0.0	
40	42	40-50	24	24730		trace coarse sand				
49			27							
			25							
50	26	50-52	24	24/15	66	Same as above; no coarse sand			0.0	
			26		<u> </u>					
51			40		 			1		
52	27	52-54	17 5	24/14	21	Same as above with medium to coarse sand			0.0	
Jr.		JE-34	7	£	-	and trace fine gravel				
53			14							
			18							
54	28	54-56	5	24/12	14	Medium dark gray N4, wet, medium and coarse sand			0.0	
			5	<u> </u>		with some fine to medium gravel; occasional dark				
55	-		9		-	gray 0.25" dry seams; some fine sand				1
56	29	56-58	- 8 - 5	24/13	13	Medium dark gray N4, wel, fine and medium			0.0	
	- 49	30-36	6	24/13	1,0	grained sand with coarse sand and fine				
57	 		7	***************************************		gravel; occasional 1" piece of gravel				
	1		10							
58	- 30	58-60	6	24/12	20	Medium dark gray N4, fine to medium sand; some			0.0	
ļ	 	<u> </u>	8			coarse sand; wel; no gravel				
59		<u> </u>	12	1	-					
60	31	60-62	12 8	24/14	40	Medium dark gray N4, wet, fine grained sand;			0.0	
<u> </u>	1		15			with medium grained sand; trace coarse sand			}	
61			25]				
			20			-			1	
62	32	62-64	13	24/12	32	Medium dark gray N4, wet, fine sand; trace to			0.0	
<u></u>	+	 	15		1	some medium grained sand			1	
63	╂──	 	17 20	1	+					
64	33	64-66	6	24/14	26	Medium dark gray N4, fine grained sand;			0.0	
	1		11			trace coarse sand				
65			15							
			20							1
66	34	66-68	7	24/13	28	Dark gray N3, fine grained sand; some			0.0	
		ļ	11			sit/clay; wet				
67	 	 	17	-		-				
68	35	68-70	15 7	24/12	17	Dark gray N3, medium grained sand; with coarse			0.0	
	1 33	100-10	8	2-71 (2	1 ''	sand and some fine gravel; trace fine sand				
69	1	1	9]	1			
			7				1			1
70	36	70-72	10	24/12	18	Dark gray N3, coarse grained sand with fine			0.0	
	<u> </u>		7			gravel and some medium gravel	1			
71	 		11			-			1	
	1	1	12			<u> </u>		_1		

						TEST BORING LOG	REPOR	RT OF BOI	RING	
D'BRIE	N & G	SERE E	NGINEE	RS, INC.				ST-L-D		
lient: So	olutia	Inc.				Sampler: 2" Diameter	Page 4 of 4			
						Split Spoon	Location:	S.E. of Site	L	
roj. Loc	: Sau	get Area	1			Hammer: 140 lb				
						•	Start Date:			
ile No.:						Fall: 30"	End Date:	01/12/00		
Boring C	ompa	ny: Harri	ss Drillin	g			Screen		Grout	
oreman							Riser		Sand Pa	
DBG Geo	ologis	t: Willian	ı E. Wrigi	nt, RG	,				Bentoni	
		1					Stratum		Field	
Depth		·		:			Change		Testir	ļg 💮
Below		Depth	Blows	Penetri -	"N"	Sample Description	General	Equip.	HNU	
Grade	No.	(feet)	16"	Recovery	Value		Descript	Installed	(ppm)	
72	37	72-74	9	24/12	13	Same as above			0.0	
			6						•	l
73			7	······································						
	<u> </u>		10		<u> </u>	0.5" fine gravel seam at 73.7 ft	1			
74	38	74-76	12	24/12	33	Medium dark gray N4, coarse grained sand			0.0	
			16		ļ	with fine to medium sand; some fine gravel				
75			17			4	1			
	ļ	ļl	21				1			
76	39	76-78	13	24/13	36	Same as above to approx. 77.25 ft		1	0.0	
	<u> </u>	ļ	18		ļ	Dark medium gray N4, wet, fine sand; trace				
77	<u> </u>	ļ	18			medium/coarse sand; occasional black 0,25"-0,5"			1	
***************************************		<u> </u>	21			seam				
78	40	78-80	10	24/12	45	Dark medium gray N4, wet, fine sand;				1
	 		17			occasional black seam (organics); some				
79		<u> </u>	28			medium sand				
	ļ		31		ļ]	
80	41						-			
	<u> </u>				<u> </u>	4				
81	ļ				 			· ·		
	<u> </u>	 			 	-				
82	 				 	4				
		 	<u> </u>	ļ		-				
83	-	 	 		 	•				
		 			-	-				1
84		 	 			4				
						-			1	
85	-		 		-	-				
						-				
86	+	╂		<u> </u>		-				
0.7			 							
87		+	 		 	1		1		
	 	-	 		1	1				
88	-	 	 	 	+	†		1	1	
89			†		-		1			
0.8	+	1	1		1					
	+	1	 		1	-				
90		+	 	 	 					
					+	1				1
91		 	-			-				
92		1	 	1	1	-				
l	 	1	1		1	-				
93		1	†	-	+	┪				
33		 	-	 	+					
	+	1	1	 	-	┥				
94		 	1	 	+-	┥				
	_		 	 	1	-				
ne.	3						1	1	1	
95				i i			1	1	į	1

,			***************************************		Ì	TEST BORING LOG	REPOR	T OF BO	RING	
O'BRIE	NRC	ERF F	NGINF	ERS, INC.			l	ST-N-D		
Client: S				.,,		Sampler: 2" Diameter	Page 1 of 4			
CHEHL S	viulid	:: I U.				Split Spoon	Location:			
Proj. Loc	· Sam	net Ares	1			Hammer: 140 lb				
, ruj, EUC		jet mied	•			•	Start Date:	12/13/99	•	
File No.:	10040	123548				Fall: 30"	End Date:			
			iss Drillin	ıa			Screen	= \	Grout	
Foremar				r al			Riser		Sand Pa	ck
OBG Ge			inch				1		Bentoni	le
	1						Stratum		Field	
Depth					İ		Change		Testin	g
Below		Depth	Blows	Penetr/	"N"	Sample Description	General	Equip.	HNU	
Grade	No.	(feet)	/6"	Recovery	Value		Descript	Installed	(ppm)	
0	1	, <i>- y</i>	5	24"/18"	15	Dark yellowish brown 10YR4/2, damp, firm, sandy	OH	Į.	0.0	
	T		. 8			clay; small pieces of brick and concrete				
1	1		7							
	1		5							
2	2		1	24"/24"	7	Moderate yellowish brown 10YR5/4, damp soft			0.0	
			3			clay; trace silt				
3			4							
			5						1	
4	3		1	24"/18"	9	Same as above		1		
			4							
5			5	<u> </u>			5'			
			4		<u> </u>	Moderate yellowish brown 10YR5/4, damp,	ļ			1
6	4		2	24"/12"	2	loose fine sand; trace silt	sw		0.0	
			1		<u> </u>	Moderate yellowish brown 10YR5/4, wet, very				
7			11			loose fine sand; trace sill				
			2		 	1				
8	5		1	24"/12"	2	Moderate yellowish brown 10YR5/4, wet, very	SM		0.0	
			11	<u> </u>	1	loose siity sand				
9			11		ļ					
			11	<u> </u>	<u> </u>	-				
.0	6			24"/18"	2	Same as above			0.0	
			11	<u> </u>		4				
11	-	ļ	11	<u> </u>						
	_	 	<u> </u>		_	and the state of t	C147		0.0	
12	7	1	1 1	24"/24"	9	Moderate yellowish brown 10YR5/4, wet, very	sw		0.0	
-		1	4		+	loose fine sand; some silt			1	1
13		 	5	-	-	-				
	-	 	7	A 48/4 84	-	Madacata valinguich brown 10VDEM was	sw		0.0	İ
14	В	 	2	24"/18"	7	Moderate yellowish brown 10YR5/4, wet.	JVV		0.0	
	+	 	2		+	loose fine sand; trace silt				
15					-					ļ
	+-		 	7,11101		Same as above			0.0	
16	9	-	7	24"/12"	11	TOPING BO GUUTK			1	
1-1-	-	-	<u>6</u> 5	1		-				
17	+	 	8	-	 	- 				
	+	 	4	24"/12"	13	Same as above; trace medium gravel	sw	1	0.0	
18	10	 		44114	1 "	WHITE HE MENTS THEN THE MINTERS OF STREET				
	+	1	7	- 	+	-				
19					+	-				
	4.	-	11 2	24"/12"	17	Same as above; trace fine gravel			0.0	
20	11	+	7	47/14	- '' -	Annual managed appropriate Branch				
 	+				+					
21		 -	10		+	- 				
<u> </u>	+	-		2/*14.2*	18	Moderate yellowish brown 10YR5/4, wet,	sw	***************************************	0.0	
22	12	+	5	24"/12"	1 '6	loose, fine sand; trace sill	""	****		
M		+	8	+	-	TOPPE, INC. SOIM, HOUSE SHE				
23			10	-						
 			10							
						•				

						TEST BORING LOG	REPOR	T OF BOR	RING	
O'BRIF	NRC	SEREE	NGINE	RS, INC.			, , , , , , , , , , , , , , , , , , , ,	ST-N-D		
Client: S						Sampler: 2" Diameter	Page 2 of 4			
						Split Spoon	Location:	Site N		
Proj. Loc	:: Sau	get Area	1			Hammer: 140 lb				
							Start Date:			
File No.:						Fall: 30"	End Date: 1	T	1	
			iss Drillin	g			Screen		Grout	_4.
Foreman							Riser		Sand Pa Bentoni	
OBG Ge	ologis	t: Tony i	inch				Ctontum	1	Field	
			'				Stratum Change		Testir	
Depth Below		Depth	Blows	Penetr <i>i</i>	"N"	Sample Description	General	Equip.	HNU	\$
Grade	No.	(feet)	/6"	Recovery	Value	Sample Description	Descript	1 ' '	(ppm)	
24	13	(leet)	4	24"/12"	16	Moderate yellowish brown 10YR 5/4, wet,	sw	1110001100	0.0	
	13		6	<u> </u>	 	loose, fine to medium sand; trace slit	"			
25			10							
	 		10							
26	14		4	24"/12"	19	Same as above		1	0,0	
			9						1	
27			10							
			12			•				
28	15		5	24"/12"	9	Moderate yellowish brown 10YR 5/4, wet,	sw		0.0	
<u> </u>	<u> </u>	<u> </u>	5			loose, medium to coarse sand; trace silt				
29	ļ	ļ	4							
	 		44		<u> </u>	-				
30	15		5	24"/12"	21	Moderate yellowish brown 10YR 5/4, wet,	sw		0.0	
	╀	<u> </u>	12		<u> </u>	medium dense fine sand; trace silt				
31	 		9		 				1	
	 		9		 		sw		0.0	
32	17		4	24"/12"	7	Wet, loose, coarse sand; trace silt	244		0.0	
	╂		3		<u> </u>					
33			3	<u> </u>	 	-				
34	18		6.	247/187	15	Same as above			0.0	
- 34	1-:-	 	7	1 22.112	1				1	
35	†		8		1	Medium gray N5, wet, loose, fine sand;	sw			
	1		10			trace silt				
36	19		6	24"/12"	18	Same as above			0.0	1
			10							
37			8			_				
<u> </u>			9		<u> </u>	_				1
38	20	1	3	24"/12"	9_	Same as above			0.0	
<u></u>			4	<u> </u>	1	4				
39	-	-	5	-	1	-				
<u> </u>	-	-	 	 	 				0.0	
40	21	-	 	24"/12"	 11	Same as above			U.U	
	+-	 	7	 	1	1				
41	+	+	11	 	1	†				
42	22	 	9	24"/12"	14	Same as above; grades/intermixed medium sand	sw		0.0	
1	╅╧	+	7		 		""	1.		
43	+	1	7	<u> </u>		•				ļ
	+	†	6		1					
44	23	1	5	24"/12"	11	Medium gray N5, wet, loose, medium to coarse	sw		0.0	
	T==		7	T		intermixed sand; trace silt				
45		1	4							1
	1		5							
46	24		3	24"/6"	4	Wet, loose, coarse sand intermixed with fine to	SP		0.0	
			2			medium gravel	1			
47	1		2							
			2		ì					
	1	_ 1	_14	<u>. I</u>		, <u>1</u> , , , , , , , , , , , , , , , , , , ,				

Sauge 1040/2 npan; fim C ogist:	nc. et Area ' 23548	1 iss Drilling	ers, INC.		1 = = 1				
Sauge 1040/2 npan; fim C ogist:	nc. et Area ' 23548 ny: Harris Crank	1 iss Drilling		7,7	Split Spoon	-			
Sauge 1040/2 npany Fim C ogist:	et Area 1 23548 iy: Harris Crank	iss Drillin	1	7,7	Split Spoon	Location: \	Site N		
npanj Fim C ogist:	23548 iy: Harri: Crank	iss Drillin			1 1				
npanj Fim C ogist:	23548 iy: Harri: Crank	iss Drillin	<u> </u>	١	• • • • • • • • • • • • • • • • • • • •				
npanj fim C ogist:	ıy: Harri: Crank		a	-	į į	Start Date:			
ogist:	crank		a	'		End Date: 1		T	
ogist:			ψ.					Grout	- 1-2
ا ادور	Tony F				1	Riser	ليا ليا	Sand Pa Bentonii	
₹o.	1	inch		τ	T .		<u> </u>	Field	
₹o.	,	,	i i	'		Stratum Change		Testin	
₹o.			i i		,	Change General	Equip.	HNU	13
	Depth	Blows	Penetr/	1 1	Vanishing = 11011 1	General Descript	Installed	(ppm)	ĺ
	(feet)	/6"	Recovery	Value		Descript	Matones	0.0	
25		1	24"/18"	5	Medium dark gray N5, wet, coarse sand:	244		\ ".~ !	ĺ
+		1	i	-	little fine gravel	i		1	
-+		1		+	1	i		1	ĺ
\dashv		 	24" 24"	+	The second secon	l i		!	
26			24 124	1-1-	-1 1	į			
-+		[r	+	~! ·	sw		1	
+		 	 	+	- 1 ' '	1		1	
			24"/12"	+ 17		ĺ	***************************************	0.0	
2 /		 	44.11	+	TYYOU, HOUSE, GORAGE GARRIER THE CO.		! .		
-		1		+	Medium gray N5, wet, loose, fine sand; trace silt	ĺ		1.	
-		1	 	+	historian Start st	1		ľ	
28		3	24"/12"	15	1			0.0	
-		6		1	1				
		9		+	1				
		16		 	1				
29		 7	247/18*	23	Medium dark gray N4, wet, loose, fine sand;	sw		0.0	
1		9		1	trace silt	1			
		14			1	1			Į
		14			_]				
30	·	2	24"/18"	10	Same as above			0.0	
		4		<u> </u>					
		6							
		10	<u> </u>		_				ļ
31		4 -	24"/18"	18	Same as above			0.0	
		8			4				İ
	 	10			_				
	 	10	- 1544	+	-1.			0.0	
32		9	24"/12"	61	Same as above		1		
	 		 		-				
	 		1		- and and trans sit				
		~ !	24"(18"	19		n SW		0.0	
33	 		24710	10	 	"			
	 	·	+	_					
	 		-	_					
- 74	 		24"/18"	23	Nadium dark orav N4, wet, medium dense,			0.0	
34	 		67,72	+	medium sand; trace slit				
	 			1	induction assists				
	 			_	–				
75	 		24"/18"	8	Medium gray N5, wet, toose, medium to coarse	sw		0.0	
	 		*****	1	sand; little fine gravel; trace sitt		Į		
,	 				durin, mile				
	 		+	1	4				
વક	 		24"/18"	13	Wet, loose, coarse sand and fine gravel;			0.0	
	 		1		trace sill				
	 	10	1	_	The state of the s				
	 			_	–				
	30	27 28 29 30 31 31 32 33 34	5 7 7 11 12 12 12 35 3 3 3 3 5 3 3 3 3 5 5 8 8 36 1 1 3 3 3 5 5 5 8 8 36 1 1 3 3 3 5 5 5 8 8 36 1 1 3 3 3 5 5 5 8 8 36 1 1 3 3 3 5 5 5 8 8 36 1 1 3 3 3 5 5 5 8 8 36 1 1 3 3 3 5 5 5 5 8 8 36 1 1 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 26 5 24"/24" 5 7 11 27 4 24"/12" 7 10 17 28 3 24"/12" 6 9 16 29 7 24"/18" 9 14 14 30 2 24"/18" 8 10 10 32 9 24"/18" 8 10 10 32 9 24"/18" 8 10 11 11 11 11 11 11	26 5 24"/24" 12 5 7 11 12 27 4 24"/12" 17 7 10 17 15 28 3 24"/12" 15 6 9 16 24"/18" 23 9 14 14 24"/18" 10 30 2 24"/18" 10 10 31 4 24"/18" 18 18 8 10 10 10 18 18 32 9 24"/12" 18 <t< td=""><td> </td><td> </td><td> 26</td><td> </td></t<>			26	

				····	7	TEST BORING LOG	REPOR	T OF BOR	RING	
MIM			LIC11	ma 1110		, 201 00111110 200		ST-N-D		1
			NGINEE	RS, INC.						
Client: So	olutia l	nc.				Sampler: 2" Diameter	Page 4 of 4			1
						Split Spoon	Location:	Site N		1
Proj. Loc:	Saug	et Area	1		ļ	Hammer: 140 lb	A	45145155		
					İ	•	Start Date:			
File No.: 1						Fall: 30"	End Date: 1			
Boring Co	ompar	ıy: Harri	ss Drillin	g			Screen		Grout	
Foreman:							Riser		Sand Pac	
OBG Geo			inch						Bentonite	
							Stratum		Field	
Depth	.	.	-				Change		Testing	
Below	1	Depth	Blows	Penetr/	"N"	Sample Description	General	Equip.	HNU	
		(feet)	/6"	Recovery	Value		Descript	installed	(ppm)	
Grade	No.	(reet)			11	Medium dark gray N4, coarse grained sand	SP		0.0	
72	37		2	24"/24"] .			
			4		 	and fine gravel; trace silt				
73			7		 	-				1
			10					1		
74	38		4	24"/24"	13	Intermixed, wet, loose, medium to coarse sand;	SP		0,0	
			5	<u> </u>		Irace sill				
75			8							
			3			*				
76	39		3	24"/24"	12	Intermixed, wet, loose, coarse sand and fine gravel;	SP		0.0	}
			5		1	trace sill				
77			7	<u> </u>	1	1				
					1	•				
	H.,		7	# 433# 43	+	Same as above				1
78	40		1	24"/24"	2	Same as above				
	ļ		11	ļ		4				
79			1							
<u> </u>			11			-		-		
80	41						_			
						EOB @ 80 fbg	1	1		
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GSI Job No. G-2876 Issued: January 21, 2005

EVALUATION OF SEPTEMBER 1999 DNAPL THICKNESS DATA ON TABLE 4-0C

Sauget Area 1, Sauget and Cahokia, Illinois

ATTACHMENT 5 - VOCS AND SVOCS IN GROUNDWATER AT SAUGET AREA 1

Figure 4-18: Ground Water, Total VOCs, Sauget Area 1
(Source: EE/CA and RI/FS Report, Roux Associates, 2001)

Figure 4-19: Ground Water, Total SVOCs, Sauget Area 1
(Source: EE/CA and RI/FS Report, Roux Associates, 2001)

